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# DIRECT FILTRATION OF LAKE SUPERIOR WATER FOR ASBESTIFORM FIBER REMOVAL. APPENDIX A. WEATHER AND LAKE LEVEL DATA, WATER QUALITY DATA, AND RAW WATER PUMPING SCHEDULE

Black and Veatch

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Pilot plant research conducted in 1974 at Duluth, Minnesota, demonstrated that asbestiform fiber counts in Lake Superior water would be effectively reduced by municipal filtration plants. During the study, engineering data were also obtained for making cost estimates for construction and operation of both granular and diatomaceous earth (DE) filtration plants ranging in size from 0.03 to 30 mgd. This appendix contains a portion of the data collected in the study. The following categories of information are presented in Appendix A: (1) Weather and lake level data; (2) Operating schedule for pumps at the pumping station; (3) Chemical and physical quality parameters of raw and filtered water; (4) Dissolved oxygen content of raw and finished water; and (4) Bacteriological data for raw and finished water.

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|---|---|---|
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June 1975

# DIRECT FILTRATION OF LAKE SUPERIOR WATER FOR ASBESTIFORM FIBER REMOVAL

## Appendix A

## Weather and Lake Level Data, Water Quality Data, and Raw Water Pumping Schedule

By

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Program Element No. 1CB047
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NATIONAL ENVIRONMENTAL RESEARCH CENTER
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
CINCINNATI, OHIO 45268

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## FOREWORD

Man and his environment must be protected from the adverse effects of pesticides, radiation, noise and other forms of pollution, and the unwise management of solid waste. Efforts to protect the environment require a focus that recognizes the interplay between the components of our physical environment -- air, water, and land. The National Environmental Research Centers provide this multidisciplinary focus through programs engaged in

- studies on the effects of environmental contaminants on man and the biosphere, and
- a search for ways to prevent contamination and to recycle valuable resources.

This report and its appendices present the results of pilot plant filtration research for the removal of asbestiform fibers from drinking water. The several appendices present detailed information on water quality, pilot plant equipment and operation, individual filter run data, asbestiform fiber and amphibole mass concentrations in raw and filtered water, and diatomite filter optimization. Appendix A contains water quality data.

A. W. Breidenbach, Ph.D.
Director
National Environmental
Research Center, Cincinnati

## ABSTRACT

Pilot plant research conducted in 1974 at Duluth, Minnesota, demonstrated that asbestiform fiber counts in Lake Superior water could be effectively reduced by municipal filtration plants. During the study, engineering data were also obtained for making cost estimates for construction and operation of both granular and diatomaceous earth (DE) filtration plants ranging in size from 0.03 to 30 mgd.

This appendix contains a portion of the data collected in the study. The following categories of information are presented in Appendix A:

Weather and lake level data

Operating schedule for pumps at the pumping station

Chemical and physical quality parameters of raw and filtered water

Dissolved oxygen content of raw and finished water

Bacteriological data for raw and finished water.

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APPENDIX A-1 WEATHER AND LAKE LEVEL DATA, DULUTH LAKEWOOD PUMPING STATION
MONTH OF APRIL, 1974.

| Date | High temp., °F | Wind veloc., mph[a] | Precip. in.[b] | Wind dir.[a] | Lake level ft[c] | Notes |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
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| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | 36 | 7 | 0 | NE | 600.77 | Ice on lake. |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | 39 | 3 | 0.40 | NE | 600.7 | Ice starting to breakup. |
| 23 | 41 | 3 | 0 | N | 600.72 | Small patches of ice. |
| 24 | 38 | 6 | T | NE | 600.85 | Very little ice. |
| 25 | 47 | 8 | 0 | NE | 600.83 | Ice along north shore. |
| 26 | 52 | 12 | 0 | SE | 600.91 | Ice along north shore. |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | 57 | 5 | 0.02 | SW | 600.85 | Ice on lake. |
| 30 | 60 | 8 | 0 | NW | 600.80 | Ice on lake. |
| 31 | | | | | | |

a Wind velocities and direction are from Lakewood pumping station records and are not official. The values are based on observations by the plant operators.

b Precipitation values are from U.S. Weather Bureau at Duluth International Airport.

c International Great Lakes Datum.

APPENDIX A-1 (CONTINUED) MONTH OF MAY, 1974.

| Date | High temp., °F | Wind veloc., mph[a] | Precip., in.[b] | Wind dir.[a] | Lake level ft.[c] | Notes |
|---|---|---|---|---|---|---|
| 1 | 36 | 15 | T | NE | 601.11 | Ice piled near shore. |
| 2 | 61 | 10 | 0.42 | SW | 600.95 | Ice on lake. |
| 3 | 51 | 8 | T | NW | 600.80 | Ice on lake. |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | 40 | 12 | 0 | NE | 600.97 | |
| 7 | 35 | 20 | 0 | E | 601.10 | White caps @ 1400 hrs. |
| 8 | 40 | 15 | 0 | E | 601.03 | |
| 9 | 43 | 4 | T | E | 600.98 | |
| 10 | 39 | 8 | 0.35 | E | 601.12 | |
| 11 | 50 | 15 | 0.55 | SW | 601.28 | |
| 12 | 50 | 20 | 0.03 | NW | 600.88 | |
| 13 | 43 | 8 | 0.28 | NE | 601.13 | |
| 14 | 37 | 8 | 0.32 | NE | 601.15 | |
| 15 | 52 | 5 | 0 | SE | 601.06 | |
| 16 | 44 | 7 | 0 | NE | 601.18 | |
| 17 | 60 | 6 | 0 | N | 601.08 | |
| 18 | 54 | 18 | 0 | E | 601.22 | |
| 19 | 52 | 20 | 0 | E | 601.32 | |
| 20 | 49 | 8 | T | NE | 601.30 | |
| 21 | 60 | 3 | 0.36 | E | 601.17 | |
| 22 | 68 | 7 | 0 | SW | 601.06 | |
| 23 | 58 | 18 | T | SW | 601.00 | |
| 24 | 60 | 8 | 0.02 | NW | 601.01 | |
| 25 | 64 | 10 | 0 | NW | 601.10 | |
| 26 | 52 | 5 | 0 | SE | 601.17 | |
| 27 | 45 | 10 | 0.02 | NE | 601.23 | |
| 28 | 50 | 5 | T | NE | 601.23 | |
| 29 | 50 | 7 | 0.01 | E | 601.18 | |
| 30 | 50 | 7 | 0.62 | E | 601.24 | |
| 31 | 65 | 10 | T | SW | 601.07 | |

a Wind velocities and direction are from Lakewood pumping station records and are not official. The values are based on observations by the plant operators.

b Precipitation values are from U.S. Weather Bureau at Duluth International Airport.

c International Great Lakes Datum.

APPENDIX A-1 (CONTINUED) MONTH OF JUNE, 1974.

| Date | High temp., °F | Wind veloc., mph[a] | Precip., in.[b] | Wind dir.[a] | Lake level ft[c] | Notes |
|---|---|---|---|---|---|---|
| 1 | 60 | 3 | T | SE | 601.19 | |
| 2 | 62 | 8 | 0.05 | SW | 601.22 | |
| 3 | 59 | 3 | 0.12 | W | 601.31 | |
| 4 | 68 | 3 | 0.37 | SE | 601.26 | |
| 5 | 55 | 10 | 0 | E | 601.39 | |
| 6 | 56 | 10 | 1.26 | E | 601.44 | |
| 7 | 53 | 3 | T | NE | 601.28 | |
| 8 | 68 | 5 | 0 | S | 601.32 | |
| 9 | 54 | 15 | 1.22 | NE | 601.52 | |
| 10 | 68 | 8 | 0.33 | NW | 601.30 | |
| 11 | 65 | 15 | 0.02 | NW | 601.33 | |
| 12 | 67 | 12 | T | NW | 601.36 | |
| 13 | 58 | 5 | 0 | E | 601.46 | |
| 14 | 74 | 10 | 0.23 | NW | 601.48 | |
| 15 | 52 | 18 | 0.04 | NW | 601.32 | |
| 16 | 56 | 18 | T | NW | 601.31 | |
| 17 | 54 | 5 | T | NW | 601.44 | |
| 18 | 68 | 10 | T | SW | 601.54 | |
| 19 | 68 | 7 | 0 | SW | 601.49 | |
| 20 | 58 | 8 | T | NE | 601.52 | |
| 21 | 60 | 8 | 0 | NE | 601.51 | |
| 22 | 54 | 12 | 0 | NE | 601.50 | |
| 23 | 52 | 10 | 0 | E | 601.50 | |
| 24 | 64 | 8 | 0 | E | 601.52 | |
| 25 | 56 | 5 | 0 | NE | 601.52 | |
| 26 | 67 | 3 | 0 | E | 601.53 | |
| 27 | 65 | 8 | 0 | E | 601.57 | |
| 28 | 64 | 8 | 0 | NE | 601.58 | |
| 29 | 73 | 12 | 0.43 | SW | 601.52 | |
| 30 | 76 | 20 | 0 | SW | 601.40 | |
| 31 | | | | | | |

a Wind velocities and direction are from Lakewood pumping station records and are not official. The values are based on observations by the plant operators.

b Precipitation values are from U.S. Weather Bureau at Duluth International Airport.

c International Great Lakes Datum.

APPENDIX A-1 (CONTINUED) MONTH OF JULY, 1974.

| Date | High temp., °F | Wind veloc., mph[a] | Precip., in.[b] | Wind dir.[a] | Lake level ft[c] | Notes |
|---|---|---|---|---|---|---|
| 1 | 65 | 8 | 0.03 | E | 601.56 | |
| 2 | 60 | 8 | 0 | NE | 601.61 | |
| 3 | 66 | 15 | 0.14 | W | 601.63 | |
| 4 | 70 | 8 | 0 | NW | 601.50 | |
| 5 | 79 | 12 | T | SW | 601.66 | |
| 6 | 64 | 10 | T | SW | 601.69 | |
| 7 | 72 | 10 | 0 | SW | 601.71 | |
| 8 | 68 | 8 | 0.04 | SW | 601.71 | |
| 9 | 72 | 18 | T | E | 601.76 | |
| 10 | 57 | 18 | 0 | E | 601.85 | |
| 11 | 55 | 12 | 0 | E | 601.82 | |
| 12 | 59 | 4 | 0.12 | E | 601.75 | |
| 13 | 62 | 15 | 0.40 | NW | 601.67 | |
| 14 | 79 | 15 | 0 | W | 601.58 | |
| 15 | 60 | 10 | 0 | NE | 601.68 | |
| 16 | 63 | 8 | 0.02 | SE | 601.73 | |
| 17 | 79 | 12 | 0.15 | SW | 601.79 | |
| 18 | | 10 | T | NW | 601.65 | |
| 19 | 65 | 15 | 0.25 | NE | 601.75 | |
| 20 | 62 | 12 | 0 | E | 601.80 | |
| 21 | 54 | 7 | 3.40 | E | 601.79 | |
| 22 | 79 | 8 | 0 | SW | 601.71 | |
| 23 | 62 | 8 | 0 | E | 601.75 | |
| 24 | 60 | 8 | 0.29 | NE | 601.84 | |
| 25 | 82 | 8 | 0 | SW | 601.76 | |
| 26 | 72 | 10 | T | W | 601.64 | |
| 27 | 78 | 15 | T | W | 601.53 | |
| 28 | 72 | 15 | T | W | 601.51 | |
| 29 | 62 | 10 | 0.01 | NW | 601.54 | |
| 30 | 63 | 8 | T | NW | 601.54 | |
| 31 | | | 0 | | 601.62 | |

a Wind velocities and direction are from Lakewood pumping station records and are not official. The values are based on observations by the plant operators.

b Precipitation values are from U.S. Weather Bureau at Duluth International Airport.

c International Great Lakes Datum.

APPENDIX A-1 (CONTINUED) MONTH OF AUGUST, 1974.

| Date | High temp., °F | Wind veloc., mph[a] | Precip., in.[b] | Wind dir.[a] | Lake level ft[c] | Notes |
|---|---|---|---|---|---|---|
| 1 | 67 | 3 | 0.40 | W | 601.72 | |
| 2 | 58 | 8 | 1.23 | NE | 601.84 | |
| 3 | 56 | 5 | 0.25 | NE | 601.76 | |
| 4 | 74 | 5 | T | NW | 601.72 | |
| 5 | 74 | 5 | T | W | 601.78 | |
| 6 | 75 | 5 | 0 | SW | 601.80 | |
| 7 | 72 | 3 | 0.02 | SE | 601.82 | |
| 8 | 66 | 8 | 0 | E | 601.85 | |
| 9 | 66 | 15 | 0 | E | 601.93 | |
| 10 | 63 | 12 | 0.45 | NE | 602.08 | |
| 11 | 63 | 5 | 0.07 | SW | 601.93 | |
| 12 | 75 | 10 | 0.07 | NW | 601.81 | |
| 13 | 64 | 8 | 0.04 | NE | 601.86 | |
| 14 | 64 | 15 | T | NE | 602.04 | |
| 15 | 68 | 5 | T | E | 601.99 | |
| 16 | 73 | 7 | 0 | SW | 601.84 | |
| 17 | 74 | 8 | 0.01 | W | 601.85 | |
| 18 | 68 | 5 | T | S | 601.87 | |
| 19 | 68 | Calm | 0 | | 601.94 | |
| 20 | 76 | 12 | 0.01 | SE | 602.03 | |
| 21 | 72 | 5 | 0.05 | SW | 601.96 | |
| 22 | 64 | 7 | T | W | 601.82 | |
| 23 | 62 | 5 | T | NE | 601.88 | |
| 24 | 62 | 15 | T | NE | 601.99 | |
| 25 | 75 | 10 | 0.95 | S | 602.02 | |
| 26 | 68 | 15 | T | W | 601.78 | |
| 27 | 67 | 10 | 0 | W | 601.79 | |
| 28 | 62 | 0 | 0.09 | - | 601.92 | |
| 29 | 61 | 15 | 0 | W | 601.75 | |
| 30 | 64 | 12 | 0.13 | W | 601.82 | |
| 31 | 58 | 10 | 0.02 | W | 601.68 | |

a Wind velocities and direction are from Lakewood pumping station records and are not official. The values are based on observations by the plant operators.

b Precipitation values are from U.S. Weather Bureau at Duluth International Airport.

c International Great Lakes Datum.

APPENDIX A-1 (CONTINUED) MONTH OF SEPTEMBER, 1974.

| Date | High temp., °F | Wind veloc., mph[a] | Precip., in.[b] | Wind dir.[a] | Lake level ft.[c] | Notes |
|---|---|---|---|---|---|---|
| 1 | 58 | 5 | T | W | 601.82 | |
| 2 | 55 | 8 | T | NW | 601.79 | |
| 3 | 62 | 7 | 0 | SW | 601.74 | |
| 4 | 60 | 0 | 0 | -- | 601.82 | |
| 5 | 59 | 7 | 0 | E | 601.88 | |
| 6 | 55 | 10 | 0.02 | E | 601.93 | |
| 7 | 56 | 5 | 0.13 | SE | 601.89 | |
| 8 | 62 | 7 | 0.02 | NW | 601.76 | |
| 9 | 53 | 10 | 0.01 | E | 601.89 | |
| 10 | 52 | 10 | 0.01 | E | 602.03 | |
| 11 | 66 | 10 | 0.17 | SW | 601.84 | |
| 12 | 49 | 10 | 0.18 | E | 601.85 | |
| 13 | 52 | 15 | T | W | 601.73 | |
| 14 | 64 | 12 | 0 | SW | 601.83 | |
| 15 | 60 | 10 | 0 | NW | 601.75 | |
| 16 | 66 | 10 | 0.02 | SW | 601.79 | |
| 17 | 56 | 7 | 0 | NE | 601.88 | |
| 18 | 71 | 10 | 0 | SW | 601.89 | |
| 19 | 62 | 8 | 0.03 | SW | 601.80 | |
| 20 | 57 | 10 | 0.01 | SW | 601.84 | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |
| 31 | | | | | | |

a Wind velocities and direction are from Lakewood pumping station records and are not official. The values are based on observations by the plant operators.

b Precipation values are from U.S. Weather Bureau at Duluth International Airport.

c International Great Lakes Datum.

APPENDIX A-2 RAW WATER PUMPING SCHEDULE, DULUTH LAKEWOOD PUMPING STATION, 1974.

| Date | Time | | Total hours of pumping | Total Volume pumped, 1,000 gal. |
|---|---|---|---|---|
| | Start | Stop | | |
| 4-19 | 0830 | 2000 | 11.5 | |
| | 2130 | 2400 | 2.5 | 13280 |
| 4-22 | 0830 | 0500 | 20.5 | 19530 |
| 4-23 | 1200 | 2100 | 9.0 | |
| | 2400 | 0830 | 8.5 | 16580 |
| 4-24 | 0830 | 1530 | 7.0 | |
| | 2200 | 0830 | 10.5 | 16480 |
| 4-25 | 0830 | 2400 | 15.5 | |
| | 0800 | 0830 | 0.5 | 15180 |
| 4-26 | 0740 | 0830 | 0.5 | 15300 |
| 4-29 | 0830 | 1540 | 7.16 | |
| | 1500 | 2400 | 5.00 | |
| | 0800 | 0830 | 0.5 | 11950 |
| 4-30 | 0830 | 2000 | 11.5 | |
| | 2400 | 0830 | 8.5 | 18850 |
| 5-1 | 0830 | 1900 | 10.5 | |
| | 2400 | 0830 | 8.5 | 18080 |
| 5-2 | 0830 | 2400 | 15.5 | |
| | 0615 | 0830 | 2.25 | |
| | 0830 | 2345 | 15.25 | 16860 |
| 5-3 | 0800 | 0830 | 0.5 | 14870 |
| 5-6 | 0830 | 0900 | 0.5 | |
| | 1000 | 1700 | 7.0 | |
| | 0100 | 0830 | 7.5 | 14070 |
| 5-7 | 0830 | 1700 | 8.5 | |
| | 2400 | 0830 | 8.5 | 16080 |
| 5-8 | 0830 | 1200 | 15.5 | |
| | 0800 | 0830 | 0.5 | 15290 |
| 5-9 | 0830 | 2345 | 15.25 | |
| | 0745 | 0830 | 0.75 | 15200 |
| 5-10 | 0830 | 2345 | 15.25 | |
| | 0750 | 0830 | 0.67 | 15170 |

APPENDIX A-2 (CONTINUED)

| Date | Time | | Total hours of pumping | Total Volume pumped, 1,000 gal. |
|---|---|---|---|---|
| | Start | Stop | | |
| 5-11 | 0830 | 2345 | 15.25 | |
| | 0730 | 0830 | 1.00 | 15380 |
| 5-12 | 0830 | 0830 | 24.0 | 22900 |
| 5-13 | 0830 | 1800 | 9.5 | |
| | 0025 | 0830 | 8.083 | 16580 |
| 5-14 | 0830 | 2300 | 14.5 | |
| | 0530 | 0830 | 3.0 | 16680 |
| 5-15 | 0830 | 2345 | 15.25 | |
| | 0745 | 0830 | 0.75 | 15070 |
| 5-16 | 0830 | 2345 | 15.25 | 14480 |
| 5-17 | 1345 | 0830 | 18.75 | 18090 |
| 5-18 | 0830 | 2345 | 15.25 | 14400 |
| 5-19 | 0830 | 0700 | 22.5 | 21550 |
| 5-20 | 0830 | 1530 | 7.0 | |
| | 0000 | 0830 | 8.5 | 14380 |
| 5-21 | 0830 | 1230 | 4.0 | |
| | 1420 | 2000 | 5.66 | |
| | 0000 | 0830 | 8.5 | 17200 |
| 5-22 | 0830 | 2400 | 15.5 | |
| | 0740 | 0830 | 0.33 | 15600 |
| 5-23 | 0830 | 2345 | 15.25 | |
| | 0730 | 0830 | 1.00 | 15430 |
| 5-24 | 0830 | 2345 | 15.25 | 14440 |
| 5-25 | 0830 | 2345 | 15.25 | |
| | 0800 | 0830 | 0.5 | 14880 |
| 5-26 | 0830 | 0810 | 23.66 | 22660 |
| 5-27 | 1200 | 1900 | 7.0 | |
| | 0000 | 0830 | 8.5 | 14520 |

APPENDIX A-2 (CONTINUED)

| Date | Time | | Total hours of pumping | Total Volume pumped, 1,000 gal. |
|---|---|---|---|---|
| | Start | Stop | | |
| 5-28 | 0830 | 1800 | 9.5 | |
| | 0000 | 0830 | 8.5 | 17150 |
| 5-29 | 0830 | 1520 | 6.83 | |
| | 1800 | 2400 | 6.0 | 12890 |
| 5-30 | 0830 | 2345 | 15.25 | |
| | 0745 | 0830 | 0.75 | 15140 |
| 5-31 | 0830 | 2345 | 15.25 | |
| | 0800 | 0830 | 0.5 | 14910 |
| 6-1 | 0830 | 2345 | 15.25 | |
| | 0800 | 0830 | 0.5 | 14990 |
| 6-2 | 0830 | 1330 | 5.0 | |
| | 1430 | 0830 | 18.0 | 22140 |
| 6-3 | 0830 | 1900 | 10.5 | |
| | 0000 | 0330 | 3.5 | |
| | 0415 | 0830 | 4.25 | 17120 |
| 6-4 | 0830 | 2030 | 12.0 | |
| | 0000 | 0830 | 8.5 | 19490 |
| 6-5 | 0830 | 2400 | 15.5 | |
| | 0800 | 0830 | 0.5 | 15340 |
| 6-6 | 0830 | 2345 | 15.25 | |
| | 0745 | 0830 | 0.75 | 15310 |
| 6-7 | 0830 | 2345 | 15.25 | |
| | 0620 | 0830 | 2.14 | 16620 |
| 6-8 | 0830 | 2345 | 15.25 | |
| | 0720 | 0830 | 1.14 | 15750 |
| 6-9 | 0830 | 0830 | 24.0 | 23090 |
| 6-10 | 0830 | 1800 | 9.5 | |
| | 2400 | 0830 | 8.5 | 16980 |
| 6-11 | 0830 | 2400 | 15.5 | |
| | 0620 | 0830 | 2.14 | 17000 |

APPENDIX A-2 (CONTINUED)

| Date | Time | | Total hours of pumping | Total Volume pumped, 1,000 gal. |
|---|---|---|---|---|
| | Start | Stop | | |
| 6-12 | 0830 | 2400 | 15.5 | |
| | 0630 | 0830 | 2.0 | 16540 |
| 6-13 | 0830 | 2345 | 15.25 | |
| | 0745 | 0830 | 0.75 | 15230 |
| 6-14 | 0830 | 2145 | 13.25 | |
| | 2350 | 0830 | 8.67 | 20900 |
| 6-15 | 0830 | 2345 | 15.25 | |
| | 0800 | 0830 | 0.5 | 14990 |
| 6-16 | 0830 | 0830 | 24.0 | 22920 |
| 6-17 | 0830 | 1700 | 8.5 | |
| | 2400 | 0830 | 8.5 | 16050 |
| 6-18 | 0830 | 1900 | 10.5 | |
| | 2400 | 0830 | 8.5 | 18080 |
| 6-19 | 0830 | 2400 | 15.5 | |
| | 0610 | 0830 | 2.33 | 17040 |
| 6-20 | 0830 | 0830 | 24.0 | 22970 |
| 6-21 | 0830 | 2345 | 15.25 | |
| | 0800 | 0830 | 0.5 | 14920 |
| 6-22 | 0830 | 2345 | 15.25 | 14720 |
| 6-23 | 0830 | 0830 | 24.0 | 23010 |
| 6-24 | 0830 | 2100 | 12.5 | |
| | 2400 | 0830 | 8.5 | 20050 |
| 6-25 | 0830 | 0830 | 24.0 | 22980 |
| 6-26 | 0830 | 0830 | 24.0 | 22850 |
| 6-27 | 0830 | 1515 | 6.75 | |
| | 1545 | 0830 | 16.75 | 22320 |
| 6-28 | 0830 | 0715 | 22.75 | 21700 |
| 6-29 | 0830 | 0510 | 20.67 | |
| | 0800 | 0830 | 0.5 | 20050 |

APPENDIX A-2 (CONTINUED)

| Date | Time | | Total hours of pumping | Total Volume pumped, 1,000 gal. |
|---|---|---|---|---|
| | Start | Stop | | |
| 6-30 | 0830 | 0500 | 20.5 | |
| | 0625 | 0830 | 2.09 | 21280 |
| 6-31 | 0830 | 1745 | 9.67 | |
| | 2045 | 0715 | 10.5 | 18730 |
| 7-1 | 0830 | 1745 | 9.67 | |
| | 2045 | 0715 | 10.5 | 18730 |
| 7-2 | 0830 | 0630 | 22.0 | 20910 |
| 7-3 | 0830 | 0230 | 18.0 | |
| | 0630 | 0830 | 2.0 | 19090 |
| 7-4 | 0830 | 1430 | 6.0 | |
| | 2100 | 0830 | 11.5 | 16410 |
| 7-5 | 0830 | 2200 | 13.5 | |
| | 0045 | 0830 | 7.75 | 20160 |
| 7-6 | 0830 | 2345 | 15.25 | |
| | 0800 | 0830 | 0.5 | 14800 |
| 7-7 | 0830 | 0830 | 24.0 | 22910 |
| 7-8 | 0830 | 0830 | 24.0 | 23120 |
| 7-9 | 0830 | 0830 | 24.0 | 23120 |
| 7-10 | 0830 | 0830 | 24.0 | 22920 |
| 7-11 | 0830 | 0830 | 24.0 | 22850 |
| 7-12 | 0830 | 2030 | 12.0 | 22850 |
| | 2230 | 0830 | 10.0 | 20830 |
| 7-13 | 0830 | 1910 | 10.67 | |
| | 2100 | 0830 | 11.5 | 21140 |
| 7-14 | 0830 | 1015 | 1.75 | |
| | 1410 | 0830 | 18.33 | 19110 |
| 7-15 | 0830 | 1730 | 9.0 | |
| | 1945 | 0830 | 12.75 | 20570 |

APPENDIX A-2 (CONTINUED)

| Date | Time | | Total hours of pumping | Total Volume pumped, 1,000 gal. |
|---|---|---|---|---|
| | Start | Stop | | |
| 8-2 | 0830 | 2400 | 15.5 | |
| | 0730 | 0830 | 1.0 | 15630 |
| 8-3 | 0830 | 2345 | 15.25 | |
| | 0715 | 0830 | 1.25 | 15630 |
| 8-4 | 0830 | 0830 | 24.0 | 23080 |
| 8-5 | 0830 | 2000 | 11.5 | |
| | 2400 | 0830 | 8.5 | 19090 |
| 8-6 | 0830 | 0700 | 22.5 | |
| | 0820 | 0830 | $0.16\overline{6}...$ | 21470 |
| 8-7 | 0830 | 0330 | 19.0 | |
| | 0715 | 0830 | 1.25 | 19180 |
| 8-8 | 0830 | 0830 | 24.0 | 22730 |
| 8-9 | 0830 | 1900 | 10.5 | |
| | 1945 | 0115 | 5.5 | |
| | 0800 | 0830 | 0.5 | 15630 |
| 8-10 | 0830 | 2345 | 15.25 | |
| | 0800 | 0830 | 0.5 | 14920 |
| 8-11 | 0830 | 0700 | 22.5 | 21570 |
| 8-12 | 0830 | 0300 | 18.5 | |
| | 0700 | 0830 | 1.5 | 18940 |
| 8-13 | 0830 | 0500 | 20.5 | 19560 |
| 8-14 | 0925 | 0830 | $23.08\overline{3}...$ | 21980 |
| 8-15 | 0830 | 1700 | 8.25 | |
| | 2100 | 0830 | 11.5 | 19080 |
| 8-16 | 0830 | 1730 | 9.0 | |
| | 1830 | 0400 | 9.5 | 17620 |
| 8-17 | 0830 | 2345 | 15.25 | |
| | 0800 | 0830 | 0.5 | 14920 |
| 8-18 | 0830 | 0830 | 24.0 | 22850 |

APPENDIX A-2 (CONTINUED)

| Date | Time | | Total hours of pumping | Total Volume pumped, 1,000 gal. |
|---|---|---|---|---|
| | Start | Stop | | |
| 7-16 | 0830 | 1830 | 10.0 | |
| | 2030 | 0830 | 12.0 | 20800 |
| 7-17 | 0830 | 2400 | 15.5 | |
| | 0100 | 0830 | 7.5 | 21740 |
| 7-18 | 0830 | 0830 | 24.0 | 22930 |
| 7-19 | 0830 | 0830 | 24.0 | 22850 |
| 7-20 | 0830 | 1600 | 7.5 | |
| | 1700 | 0830 | 15.5 | 21970 |
| 7-21 | 0830 | 0900 | 0.5 | |
| | 1400 | 0830 | 18.5 | 17950 |
| 7-22 | 0830 | 1715 | 8.75 | |
| | 2000 | 0600 | 10.0 | 17850 |
| 7-23 | 0830 | 1215 | 3.75 | |
| | 1400 | 0830 | 18.5 | 20820 |
| 7-24 | 0830 | 0100 | 16.5 | |
| | 0600 | 0830 | 2.5 | 17600 |
| 7-25 | 0830 | 0830 | 24.0 | 22290 |
| 7-26 | 0830 | 0830 | 24.0 | 22560 |
| 7-27 | 0830 | 2345 | 15.25 | |
| | 0730 | 0830 | 1.0 | 15210 |
| 7-28 | 0830 | 0830 | 24.0 | 22950 |
| 7-29 | 0830 | 2155 | 13.41 | |
| | 2400 | 0830 | 8.5 | 20730 |
| 7-30 | 0830 | 1930 | 11.0 | |
| | 2130 | 0830 | 11.0 | 20790 |
| 7-31 | 0830 | 0500 | 20.5 | |
| | 0630 | 0830 | 2.5 | 21260 |
| 8-1 | 0830 | 0400 | 19.5 | |
| | 0745 | 0830 | 0.75 | 19000 |

APPENDIX A-2 (CONTINUED)

| Date | Time | | Total hours of pumping | Total Volume pumped, 1,000 gal. |
|---|---|---|---|---|
| | Start | Stop | | |
| 8-19 | 0830 | 2100 | 12.5 | |
| | 0100 | 0830 | 7.5 | 18940 |
| 8-20 | 0830 | 0730 | 23.0 | 21780 |
| 8-21 | 1015 | 0830 | 22.25 | 21400 |
| 8-22 | 0830 | 2100 | 12.5 | |
| | 2400 | 0500 | 5.0 | |
| | 0800 | 0830 | 0.5 | 17050 |
| 8-23 | 0830 | 2400 | 15.5 | |
| | 0630 | 0830 | 2.0 | 16500 |
| 8-24 | 0830 | 2400 | 15.5 | |
| | 0815 | 0830 | 0.25 | 14920 |
| 8-25 | 0830 | 2225 | 13.91 | |
| | 0040 | 0830 | 7.83 | 20700 |
| 8-26 | 0830 | 0300 | 18.5 | 17540 |
| 8-27 | 0830 | 0830 | 24.0 | 22750 |
| 8-28 | 0830 | 0900 | 0.5 | |
| | 1300 | 0615 | 17.25 | 16830 |
| 8-29 | 1200 | 0815 | 20.25 | 19200 |
| 8-30 | 1030 | 2400 | 13.5 | 12790 |
| 8-31 | 0830 | 2345 | 15.25 | |
| | 0800 | 0830 | 0.5 | 14920 |
| 9-1 | 0830 | 0400 | 19.5 | 18480 |
| 9-2 | 1130 | 0130 | 14.0 | 13270 |
| 9-3 | 1030 | 0830 | 22.0 | 20850 |
| 9-4 | 0830 | 1200 | 3.5 | |
| | 1700 | 0400 | 11.0 | 13740 |
| 9-5 | 1100 | 0830 | 21.5 | 20380 |

APPENDIX A-2 (CONTINUED)

| Date | Time | | Total hours of pumping | Total Volume pumped, 1,000 gal. |
|---|---|---|---|---|
| | Start | Stop | | |
| 9-6 | 0830 | 1630 | 8.0 | |
| | 1830 | 2400 | 5.5 | |
| | 0800 | 0830 | 0.5 | 13260 |
| 9-7 | 0830 | 2345 | 15.25 | 14450 |
| 9-8 | 0830 | 0830 | 24.0 | 22790 |
| 9-9 | 0830 | 1130 | 3.0 | |
| | 1830 | 0630 | 12.0 | 14210 |
| 9-10 | 1200 | 0600 | 18.0 | 17060 |
| 9-11 | 1200 | 0830 | 20.5 | 19420 |
| 9-12 | 1200 | 0215 | 14.25 | 13500 |
| 9-13 | 0900 | 2400 | 15.0 | 13700 |
| 9-14 | 0830 | 2345 | 15.25 | |
| | 0800 | 0830 | 0.5 | 14920 |
| 9-15 | 0830 | 0800 | 23.5 | 22280 |
| 9-16 | 2115 | 0830 | 11.25 | 10480 |
| 9-17 | 0830 | 0830 | 24.0 | 22730 |
| 9-18 | 0830 | 1530 | 7.0 | 15660 |
| 9-19 | 0830 | 0900 | 0.5 | |
| | 0745 | 0830 | 0.75 | 990 |
| 9-20 | 0830 | 0830 | 24.0 | 22730 |

APPENDIX A-3 RAW AND EFFLUENT WATER SAMPLE PARAMETERS, DULUTH LAKEWOOD PUMPING STATION, 1974

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 5-14 | Raw | | 1.20 | 7.80 | 33 | 42 | | | |
| | MM-1 | 6 | 0.27 | 7.40 | | 32 | | | |
| | MM-2 | 36 | 0.19 | 7.05 | | 33 | | | |
| | BIF | 7 | 0.29 | 7.80 | | 42 | | | |
| | ERD-2 | 10 | 0.40 | 7.70 | 37 | 42 | | | |
| 5-16 | MM-1 | 6 | 0.23 | 7.00 | | 32 | | | |
| | MM-2 | 36 | 0.21 | 7.00 | | 33 | | | |
| | BIF | 7 | 0.30 | 7.80 | | 41 | | | |
| | ERD-2 | 10 | 0.30 | 7.65 | 37 | 41 | | | |
| | MM-1 | 6 | 0.17 | 7.10 | | 31 | | | |
| | MM-2 | 37 | 0.14 | 7.15 | | 33 | | | |
| | MM-1 | 7 | 0.15 | 7.00 | | 33 | | | |
| | MM-2 | 37 | 0.10 | 7.00 | | 32 | | | |
| | BIF | 8 | 0.16 | 7.80 | 37 | 41 | | | |
| | ERD-2 | 10 | 0.14 | 7.80 | 37 | 40 | | | |
| | Raw | | 0.93 | 7.10 | 33 | 38 | | | |
| | MM-1 | 8 | 0.17 | 7.00 | 34 | 32 | | | |
| | MM-2 | 38 | 0.24 | 7.20 | 37 | 33 | | | |
| | BIF | 8 | 0.28 | 7.90 | 37 | 39 | | | |
| | ERD-2 | 10 | 0.43 | 7.80 | 37 | 39 | | | |
| | ERD-2 | 11 | 0.35 | 7.20 | | 38 | | | |
| 5-17 | Raw | | 1.4 | 7.70 | 34 | 40 | | | |
| | MM-1 | 8 | 0.16 | 7.20 | 34 | 31 | | | |
| | MM-2 | 38 | 0.11 | 7.20 | 38 | 32 | | | |
| | BIF | 9 | 0.54 | 7.60 | 38 | 40 | | | |
| | ERD-2 | 11 | 0.38 | 7.60 | 38 | 40 | | | |
| | MM-1 | 9 | 0.11 | 7.25 | 38 | 34 | | | |
| | MM-1 | 10 | 0.18 | 7.20 | 37 | 35 | | | |
| | MM-2 | 39 | 0.12 | 7.25 | 37 | 34 | | | |
| | BIF | 9 | 0.55 | 7.85 | 36 | 42 | | | |
| | ERD-2 | 11 | 0.25 | 7.75 | 37 | 42 | | | |
| | Raw | | 0.79 | 7.90 | 33 | 43 | | | |
| | MM-1 | 10 | 0.25 | 7.30 | 37 | 35 | | | |
| | MM-2 | 39 | 0.11 | 7.20 | 39 | 34 | | | |
| | MM-2 | 40 | 0.20 | 7.25 | 35 | 35 | | | |
| | BIF | 9 | 0.22 | 7.80 | 37 | 42 | | | |
| | ERD-2 | 12 | 0.34 | 7.8+ | 38 | 42 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 5-18 | Raw | | 1.3 | 7.85 | 33 | 43 | | | |
| | MM-1 | 10 | 0.14 | 7.2 | 38 | 33 | | | |
| | MM-1 | 11 | 0.43 | 7.25 | 34 | 34 | | | |
| | MM-2 | 40 | 0.24 | 7.2+ | 35 | 34 | | | |
| | BIF | 9 | 0.35 | 7.85 | 37 | 42+ | | | |
| | ERD-2 | 12 | 0.25 | 7.8+ | 38 | 41+ | | | |
| 5-20 | Raw | | 0.74 | 7.9 | 34 | 42 | | | |
| | MM-1 | 12 | 0.28 | 7.8 | 35 | 36 | | | |
| | MM-2 | 41 | 0.53 | 7.5 | 38 | 38 | | | |
| | BIF | 10 | 0.26 | 7.85 | 35 | 42 | | | |
| | ERD-2 | 13 | 0.34 | 7.9+ | 36 | 42 | | | |
| | MM-1 | 12 | 0.15 | 7.35 | 36 | 35 | | | |
| | MM-2 | 41 | 0.11 | 7.25 | 35 | 34 | | | |
| | BIF | 10 | 0.40 | 7.9+ | 35 | 42 | | | |
| | ERD-2 | 13 | 0.15 | 7.9 | 35 | 42 | | | |
| 5-21 | MM-1 | 13 | 0.19 | 7.25 | 37.5 | 35 | | | |
| | MM-2 | 41 | 0.08 | 7.2+ | 38 | 34 | | | |
| | BIF | 10 | 0.34 | 7.85+ | 32 | 42 | | | |
| | ERD-2 | 13 | 0.17 | 7.85 | 35 | 42 | | | |
| | MM-1 | 14 | 0.20 | 7.3 | | 35 | | | |
| | Raw | | 0.84 | 7.8+ | 34 | 42 | | | |
| | MM-1 | 14 | 0.27 | 7.3 | 35 | 36 | | | |
| | MM-2 | 42 | 0.35 | 7.2+ | 36 | 34 | | | |
| | BIF | 10 | 0.32 | 7.85+ | 34 | 42 | | | |
| | ERD-2 | 13 | 0.19 | 7.8 | 35 | 43 | | | |
| | MM-1 | 15 | 0.22 | 7.3 | 35 | 38 | | | |
| | MM-2 | 42 | 0.08 | 7.2 | 35 | 36 | | | |
| | BIF | 11 | 0.18 | 7.85 | 36 | 42 | | | |
| | ERD-2 | 13 | 0.17 | 7.75 | 35 | 40 | | | |
| 5-22 | MM-1 | 15 | 0.25 | 7.50 | | 33 | | | |
| | MM-2 | 43 | 0.20 | 7.28 | 34.5 | 32 | | | |
| | BIF | 11 | 0.20 | 7.95 | 34 | 39 | | | |
| | ERD-2 | 13 | 0.09 | 7.90 | 34.5 | 39 | | | |
| | MM-1 | 16 | 0.30 | 7.39 | 34.5 | 33 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| | MM-1 | 16 | 0.42 | 7.38 | 36 | 33 | | | |
| | BIF | 11 | 0.46 | 7.90 | 34.5 | 39 | | | |
| | ERD-2 | 13 | 0.18 | 7.88 | 35 | 39 | | | |
| | MM-1 | 17 | 0.50 | 7.40 | 34.5 | 33 | | | |
| | MM-2 | 43 | 0.13 | 7.20 | 36 | 32 | | | |
| | Raw | | 0.90 | 7.90 | 34 | 40 | | | |
| | MM-1 | 17 | 0.45 | 7.35 | 36 | 33 | | | |
| | Raw | | 0.82 | 7.80 | | 39 | | | |
| | MM-1 | 17 | 0.25 | 7.38 | 36 | 33 | | | |
| | BIF | 11 | 0.20 | 7.90 | 35 | 39 | | | |
| | Raw | | 1.5 | 7.80 | 34.5 | 40 | | | |
| | MM-1 | 18 | 0.30 | 7.39 | 35 | 34 | | | |
| | MM-2 | 44 | 0.10 | 7.35 | 36 | 34 | | | |
| | BIF | 12 | 0.09 | 7.85 | 35 | 39 | | | |
| | ERD-2 | 13 | 0.11 | 7.90 | 35 | 38 | | | |
| 5-23 | MM-1 | 18 | 0.25 | 7.55 | | 35 | | | |
| | MM-2 | 44 | 0.15 | 7.20 | | 32 | | | |
| | BIF | 12 | 0.29 | 7.85 | 34.5 | 38 | | | |
| | ERD-2 | 13 | 0.20 | 7.85 | | 39 | | | |
| | MM-1 | 19 | 0.35 | 7.40 | 34.5 | 33 | | | |
| | MM-2 | 45 | 0.15 | 7.25 | 34.5 | 33 | | | |
| | ERD-2 | 13 | 0.16 | 7.80 | 34.5 | 38 | | | |
| | MM-1 | 19 | 0.47 | 7.35 | 32 | 32 | | | |
| | Raw | | 1.0 | 8.00 | 35 | 42 | | | |
| | MM-1 | 20 | 0.20 | 7.30 | 35.5 | 33 | | | |
| | MM-2 | 45 | 0.15 | 7.40 | 37.5 | 34 | | | |
| | BIF | 12 | 0.40 | 8.05 | 35 | 40 | | | |
| | ERD-2 | 13 | 0.16 | 8.00 | 35.5 | 40 | | | |
| | BIF | 12 | 1.6 | 7.99 | | 39 | | | |
| | MM-1 | 20 | 0.16 | 7.39 | 35 | 32 | | | |
| | MM-1 | 21 | 0.18 | 7.38 | 35 | 32 | | | |
| | MM-2 | 46 | 0.14 | 7.30 | 35 | 31 | | | |
| | BIF | 13 | 0.40 | 7.90 | | 40 | | | |
| | ERD-2 | 13 | 0.18 | 7.95 | 35 | 40 | | | |
| 5-24 | MM-1 | 21 | 0.15 | 7.30 | 35 | 32 | | | |
| | MM-2 | 46 | 0.10 | 7.22 | 35 | 30 | | | |
| | BIF | 13 | 0.30 | 7.63 | 35 | 38 | | | |
| | ERD-2 | 13 | 0.19 | 7.71 | 35 | 38 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| | MM-1 | 22 | 0.13 | 7.38 | 34.5 | 31 | | | |
| | MM-2 | 47 | 0.21 | 7.30 | 35 | 32 | | | |
| | BIF | 13 | 0.31 | 7.98 | 35 | 40 | | | |
| | ERD-2 | 13 | 0.24 | 7.98 | 35.5 | 39 | | | |
| | Raw | | 0.87 | 7.99 | 35 | 40 | | | |
| | MM-1 | 22 | 0.13 | 7.35 | | 31 | | | |
| | MM-2 | 47 | 0.11 | 7.34 | | 32 | | | |
| | BIF | 14 | 0.45 | 7.97 | | 40 | | | |
| | ERD-2 | 13 | 0.20 | 7.99 | | 39 | | | |
| 5-25 | MM-1 | 22 | 0.75 | 7.30 | 35 | 32 | | | |
| | MM-2 | 47 | 0.08 | 7.25 | 35 | 31 | | | |
| | Raw | | 0.90 | 7.50 | 35 | 37 | | | |
| | BIF | 14 | 0.35 | 7.99 | 35 | 40 | | | |
| | ERD-2 | 13 | 0.27 | 7.50 | 35 | 37 | | | |
| 5-28 | MM-1 | 23 | 0.13 | 7.45 | 35 | 35 | | | |
| | MM-2 | 48 | 0.10 | 7.40 | 35 | 31 | | | |
| | BIF | 15 | 0.95 | 7.80 | 35 | 39 | | | |
| | ERD-2 | 14 | 0.28 | 7.95 | 36 | 40 | | | |
| | Raw | | 0.84 | 7.55 | 35 | 42 | | | |
| | BIF | 15 | 0.56 | 7.98 | | 38 | | | |
| | MM-1 | 23 | 0.34 | 7.45 | 35 | 33 | | | |
| | MM-2 | 45 | 0.23 | 7.40 | 35 | 34 | | | |
| | BIF | 16 | 0.22 | 7.91 | 35 | 40 | | | |
| | ERD-2 | 14 | 0.18 | 7.90 | 36 | 38 | | | |
| 5-29 | MM-1 | 24 | 0.20 | 7.51 | 35.5 | 34 | | | |
| | MM-2 | 48 | 0.90 | 7.40 | 36 | 33 | | | |
| | BIF | 16 | 0.45 | 8.00 | 36 | 43 | | | |
| | ERD-2 | 14 | 0.27 | 7.99 | 36 | 42 | | | |
| | Raw | | 0.95 | 8.10 | 35.5 | 40 | | | |
| | MM-2 | 49 | 0.26 | 7.45 | | 34 | | | |
| | MM-1 | 24 | 0.57 | 7.35 | 35 | 36 | | | |
| | MM-2 | 49 | 0.11 | 7.21 | 35 | 35 | | | |
| | BIF | 16 | 0.30 | 7.65 | 36.5 | 43 | | | |
| | ERD-2 | 14 | 0.16 | 7.87 | 36.5 | 43 | | | |
| | Raw | | 0.93 | 7.81 | 35 | 44 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| | MM-1 | 24 | 1.50 | 7.20 | | 36 | | | |
| | MM-2 | 49 | 0.09 | 7.09 | 35 | 35 | | | |
| | BIF | 17 | 0.13 | 7.72 | 36 | 42 | | | |
| | ERD-2 | 14 | 0.15 | 7.62 | 36 | 42 | | | |
| | MM-1 | 25 | 0.10 | 7.21 | 35 | 37 | | | |
| 5-30 | MM-2 | 49 | 0.83 | 7.42 | 35 | 33 | | | |
| | MM-1 | 25 | 0.10 | 7.47 | 35.5 | 37 | | | |
| | MM-2 | 50 | 0.09 | 7.35 | 37 | 34 | | | |
| | BIF | 17 | 0.21 | 7.85 | 37 | 40 | | | |
| | ERD-2 | 14 | 0.17 | 7.90 | 36.5 | 43 | | | |
| | Raw | | 0.76 | 7.71 | 35 | 42 | | | |
| | MM-1 | 25 | 0.08 | 7.49 | 36.5 | 35 | | | |
| | MM-2 | 50 | 0.08 | 7.39 | 37 | 37 | | | |
| | MM-1 | 26 | 0.15 | 7.48 | 35 | 37 | | | |
| | BIF | 17 | 0.34 | 7.93 | 35.5 | 43 | | | |
| | ERD-2 | 14 | 0.15 | 7.90 | 36.5 | 43 | | | |
| | BIF | 17 | 0.33 | 7.72 | | 43 | | | |
| | MM-1 | 26 | 0.13 | 7.16 | | 37 | | | |
| | MM-2 | 50 | 0.06 | 7.08 | | 36 | | | |
| | BIF | 18 | 0.18 | 7.70 | | 43 | | | |
| | ERD-2 | 14 | 0.15 | 7.60 | | 43 | | | |
| 5-31 | MM-2 | 50 | 0.50 | 7.15 | | 36 | | | |
| | MM-1 | 26 | 0.16 | 7.09 | | 33 | | | |
| | MM-2 | 51 | 0.36 | 7.18 | | 36 | | | |
| | BIF | 18 | 0.24 | 7.34 | | 40 | | | |
| | ERD-2 | 14 | 0.18 | 7.42 | | 40 | | | |
| | Raw | | 0.80 | 7.39 | 35 | 40 | | | |
| | MM-1 | 27 | 0.28 | 7.20 | | 36 | | | |
| | MM-1 | 27 | 0.16 | 7.45 | | 39 | | | |
| | MM-2 | 51 | 0.32 | 7.40 | | 39 | | | |
| | BIF | 18 | 0.24 | 7.80 | | 43 | | | |
| | Raw | | 0.89 | 7.90 | 35 | 43 | | | |
| | MM-1 | 27 | 0.11 | 7.45 | | 39 | | | |
| | MM-2 | 51 | 0.36 | 7.41 | | 39 | | | |
| | BIF | 18 | 0.19 | 7.91 | | 43 | | | |
| | Raw | | 0.75 | 7.90 | 35 | 43 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 6-1 | Raw | | 0.84 | 7.75 | 36 | 43 | | | |
| | MM-1 | 27 | 0.10 | 7.30 | | 39 | | | |
| | MM-2 | 51 | 0.50 | 7.45 | | 39 | | | |
| | BIF | 18 | 0.26 | 7.85 | | 43 | | | |
| 6-3 | MM-1 | 28 | 0.15 | 7.45 | | 39 | | | |
| | MM-2 | 52 | 0.10 | 7.35 | | 38 | | | |
| | BIF | 19 | 0.20 | 7.80 | | 42 | | | |
| | ERD-2 | 15 | 0.55 | 7.43 | | 40 | | | |
| | Raw | | 0.77 | 7.91 | 36.5 | 43 | | | |
| | Raw | | 0.80 | 7.88 | 36.5 | 40 | | | |
| | MM-1 | 28 | 0.09 | 7.48 | | 35 | | | |
| | MM-2 | 52 | 0.15 | 7.42 | | 37 | | | |
| | BIF | 19 | 0.19 | 7.70 | | 41 | | | |
| | ERD-2 | 15 | 0.18 | 7.60 | | 41 | | | |
| 6-4 | MM-2 | 52 | 0.08 | 7.44 | | 38 | | | |
| | MM-1 | 28 | 0.10 | 7.40 | | 35 | | | |
| | BIF | 19 | 0.15 | 7.70 | | 41 | | | |
| | ERD-2 | 15 | 0.15 | 7.65 | | 41 | | | |
| | Raw | | 0.80 | 8.00 | 36.5 | 42 | | | |
| | MM-1 | 29 | 0.14 | 7.40 | | 35 | | | |
| | MM-2 | 53 | 0.12 | 7.50 | | 36 | | | |
| | BIF | 19 | 0.15 | 8.05 | | 41 | | | |
| | ERD-2 | 15 | 0.13 | 7.90 | | 38 | | | |
| | Raw | | 0.77 | 8.00 | 37 | 42 | | | |
| | MM-1 | 29 | 0.10 | 7.55 | | 34 | | | |
| | MM-2 | 53 | 0.07 | 7.50 | | 35 | | | |
| | BIF | 19 | 0.18 | 8.00 | | 40 | | | |
| | ERD-2 | 15 | 0.16 | 7.95 | | 38 | | | |
| 6-5 | BIF | 19 | 0.15 | 7.99 | | 41 | | | |
| | MM-1 | 29 | 0.07 | 7.40 | | 35 | | | |
| | Raw | | 0.85 | 8.00 | 36.5 | 41 | | | |
| | MM-2 | 53 | 0.08 | 7.45 | | 35 | | | |
| | BIF | 20 | 0.33 | 8.00 | | 37 | | | |
| | ERD-2 | 15 | 0.14 | 7.95 | | 39 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| | BIF | 20 | 0.28 | 7.99 | | 42 | | | |
| | Raw | | 0.75 | 8.00 | 37 | 42 | | | |
| | MM-1 | 30 | 0.08 | 7.45 | | 36 | | | |
| | MM-2 | 54 | 0.15 | 7.55 | | 38 | | | |
| | ERD-2 | 15 | 0.14 | 7.60 | | 41 | | | |
| | MM-1 | 30 | 0.10 | 7.40 | | 34 | | | |
| | MM-2 | 54 | 0.09 | 7.60 | | 37 | | | |
| | BIF | 20 | 0.19 | 8.00 | | 42 | | | |
| | ERD-2 | 15 | 0.14 | 7.85 | | 38 | | | |
| | Raw | | 0.69 | 8.05 | 37 | 43 | | | |
| 6-6 | MM-1 | 30 | 0.05 | 7.55 | | 34 | | | |
| | MM-1 | 31 | 0.12 | 7.60 | | 35 | | | |
| | MM-2 | 54 | 0.06 | 7.50 | | 34 | | | |
| | BIF | 20 | 0.18 | 7.90 | | 40 | | | |
| | ERD-2 | 15 | 0.15 | 7.95 | | 39 | | | |
| | Raw | | 0.75 | 8.00 | 37 | 42 | | | |
| | ERD-2 | 15 | 0.24 | 7.90 | | 39 | | | |
| | Raw | | 0.74 | 8.05 | 36.5 | 42 | | | |
| | MM-1 | 31 | 0.09 | 7.55 | | 35 | | | |
| | MM-2 | 54 | 0.05 | 7.50 | | 34 | | | |
| | BIF | 20 | 0.20 | 8.00 | | 40 | | | |
| | ERD-2 | 15 | 0.12 | 7.90 | 40 | 39 | | | |
| | MM-1 | 31 | 0.11 | 7.45 | 37.5 | 33 | | | |
| | MM-2 | 54 | 0.09 | 7.50 | 39 | 35 | | | |
| | BIF | 20 | 0.15 | 7.99 | 38 | 39 | | | |
| | Raw | | 0.68 | 8.00 | 37 | 40 | | | |
| | Raw | | 2.2 | 8.40 | 37 | 42 | | | |
| 6-7 | Raw | | 4.6 | 8.00 | 37 | 43 | | | |
| | BIF | 20 | 0.50 | 7.95 | 34 | 39 | | | |
| | MM-1 | 31 | 0.13 | 7.49 | | 34 | | | |
| | MM-1 | 32 | 0.15 | 7.45 | 37 | 34 | | | |
| | MM-2 | 54 | 0.07 | 7.50 | 38 | 34 | | | |
| | BIF | 21 | 0.63 | 7.90 | 35 | 38 | | | |
| | Raw | | 2.8 | 8.00 | 33 | 42 | | | |
| | MM-1 | 32 | 0.15 | 7.55 | 33 | 35 | | | |
| | MM-2 | 54 | 0.07 | 7.50 | 35 | 34 | | | |
| | BIF | 21 | 0.52 | 7.95 | 34 | 40 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| | MM-1 | 32 | 0.09 | 7.60 | 37.5 | 37 | | | |
| | MM-2 | 54 | 0.045 | 7.45 | 39.5 | 33 | | | |
| | BIF | 21 | 0.31 | 7.95 | 38 | 39 | | | |
| | Raw | | 2.0 | 7.99 | 37 | 42 | | | |
| 6-8 | MM-1 | 32 | 0.23 | 7.55 | 37.5 | 36 | | | |
| | MM-2 | 54 | 0.08 | 7.50 | 39 | 33 | | | |
| | BIF | 21 | 0.31 | 7.95 | 38 | 39 | | | |
| | Raw | | 1.6 | 8.00 | | 42 | | | |
| 6-10[a] | MM-1 | 33 | 0.43 | 6.30 | 38 | 36 | | | |
| | MM-2 | 55 | 0.42 | 6.50 | 39.5 | 37 | | | |
| | BIF | 22 | 0.88 | 7.20 | 38.5 | 39 | | | |
| | Raw | | 5.6 | 7.35 | 37.5 | 42 | | | |
| | ERD-2 | 17 | 4.9 | 7.35 | 39 | 40 | | | |
| | ERD-2 | 17 | 6.1 | 7.30 | 37 | 41 | | | |
| | MM-1 | 34 | 0.13 | 7.42 | 37.5 | 36 | | | |
| | MM-2 | 55 | 0.12 | 7.38 | 37.5 | 37 | | | |
| | BIF | 22 | 0.70 | 7.60 | 38 | 39 | | | |
| | Raw | | 3.5 | 7.55 | 37.5 | 41 | | | |
| 6-11 | MM-1 | 33 | 0.14 | 6.60 | 34 | 37 | | | |
| | MM-2 | 55 | 0.10 | 6.60 | 36 | 36 | | | |
| | BIF | 23 | 0.60 | 7.00 | 34 | 42 | | | |
| | ERD-2 | 18 | 6.3 | 6.90 | 35 | 42 | | | |
| | MM-1 | 33 | 0.96 | 6.52 | 38 | 37 | | | |
| | BIF | 23 | 0.56 | 7.00 | 38 | 42 | | | |
| | ERD-2 | 18 | 6.30 | 7.00 | 38 | 42 | | | |
| | Raw | | 1.90 | 7.00 | 37.5 | 42 | | | |
| | MM-1 | 34 | 0.25 | 6.50 | 38 | 36 | | | |
| | MM-2 | 55 | 0.06 | 6.49 | 39 | 37 | | | |
| | BIF | 24 | 0.50 | 7.00 | 37.5 | 42 | | | |
| | ERD-1 | 1 | 0.56 | 7.00 | 38.5 | 42 | | | |
| | MM-1 | 34 | 0.12 | 6.50 | 37.5 | 37 | | | |
| | MM-2 | 55 | 0.11 | 6.50 | | 37 | | | |
| | BIF | 25 | 0.49 | 7.06 | 37 | 43 | | | |
| | ERD-1 | 1 | 0.19 | 6.90 | 37.5 | 42 | | | |
| | MM-2 | 56 | 0.23 | 6.60 | 39.5 | 37 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 6-12 | MM-1 | 34 | 0.16 | 6.60 | 37.5 | 37 | | | |
| | MM-2 | 56 | 0.17 | 6.50 | 39 | 35 | | | |
| | BIF | 25 | 2.2 | 7.10 | 38 | 42 | | | |
| | ERD-1 | 1 | 0.35 | 6.95 | 37.5 | 41 | | | |
| | Raw | | 4.3 | 7.20 | 38 | 43 | | | |
| | MM-1 | 35 | 0.13 | 6.80 | 38.5 | 37 | | | |
| | MM-2 | 56 | 0.08 | 6.90 | 41 | 35 | | | |
| | BIF | 25 | 0.74 | 7.35 | 38.5 | 38 | | | |
| | ERD-1 | 1 | 0.19 | 7.10 | 39 | 40 | | | |
| | Raw | | 2.6 | 7.35 | 37.5 | 40 | | | |
| | BIF | 25 | 0.60 | 7.55 | 42.5 | 41 | | | |
| | MM-2 | 56 | 0.11 | 7.15 | 42.5 | 35 | | | |
| | Raw | | 2.3 | 7.45 | 38 | 42 | | | |
| | MM-2 | 57 | 0.90 | 7.40 | 41 | 38 | | | |
| | BIF | 26 | 0.70 | 7.30 | 41 | 37 | | | |
| | ERD-1 | 1 | 0.09 | 7.10 | 42 | 39 | | | |
| 6-13 | MM-1 | 35 | 0.09 | 6.90 | | 36 | | | |
| | MM-2 | 57 | 0.15 | 6.66 | 39.5 | 36 | | | |
| | BIF | 26 | 0.55 | 6.89 | 38 | 41 | | | |
| | ERD-1 | 1 | 0.32 | 6.98 | 39.5 | 41 | | | |
| | MM-1 | 36 | 0.20 | 6.59 | 39 | 35 | | | |
| | MM-1 | 36 | 0.08 | 6.90 | 39 | 35 | | | |
| | MM-2 | 57 | 0.39 | 6.99 | 40 | 36 | | | |
| | BIF | 28 | 0.66 | 7.35 | | 40 | | | |
| | ERD-1 | 1 | 0.14 | 7.35 | 40 | 42 | | | |
| | Raw | | 2.1 | 7.35 | 37.5 | 41 | | | |
| | MM-1 | 36 | 0.06 | 6.78 | 42 | 34 | | | |
| | Raw | | 2.0 | 7.50 | 38 | 42 | | | |
| | MM-1 | 37 | 0.40 | 6.95 | 42 | 37 | | | |
| | MM-2 | 58 | 0.10 | 6.99 | 41 | 36 | | | |
| | BIF | 28 | 0.55 | 7.40 | 41 | 40 | | | |
| | ERD-1 | 2 | 0.50 | 7.05 | 41 | 41 | | | |
| 6-14 | MM-1 | 37 | 0.35 | 6.84 | | 40 | | | |
| | MM-2 | 58 | 0.10 | 6.30 | | 36 | | | |
| | BIF | 28 | 0.55 | 6.82 | 40 | 41 | | | |
| | MM-2 | 59 | 0.15 | 6.73 | | 36 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| | MM-1 | 37 | 0.38 | 7.00 | 40 | 41 | | | |
| | MM-2 | 59 | 0.12 | 6.60 | 41 | 35 | | | |
| | BIF | 29 | 0.34 | 6.92 | 39.5 | 39 | | | |
| | ERD-1 | 3 | 0.28 | 6.80 | 40.5 | 40 | | | |
| | Raw | | 1.9 | 7.19 | 38 | 41 | | | |
| | MM-1 | 38 | 0.16 | 6.60 | 40 | 36 | | | |
| | MM-2 | 59 | 0.13 | 6.75 | 39 | 36 | | | |
| | BIF | 29 | 0.37 | 7.05 | 39 | 41 | | | |
| 6-15 | MM-1 | 38 | 0.10 | 6.51 | 36 | 36 | | | |
| | MM-2 | 60 | 0.15 | 6.63 | 38 | 38 | | | |
| | BIF | 30 | 0.40 | 6.69 | 36 | 43 | | | |
| | ERD-1 | 3 | 0.11 | 6.90 | 36 | 43 | | | |
| | Raw | | 1.6 | 7.05 | 36 | 42 | | | |
| 6-17 | Raw | | 0.95 | 7.92 | 38 | 44 | | | |
| | MM-1 | 39 | 0.08 | 7.35 | 38.5 | 35 | | | |
| | MM-2 | 61 | 0.11 | 7.49 | 38.5 | 39 | | | |
| | BIF | 31 | 0.61 | 7.80 | 38.5 | 42 | | | |
| | ERD-1 | 4 | 0.13 | 7.70 | 39 | 41 | | | |
| | MM-1 | 39 | 0.11 | 7.23 | 38.5 | 33 | | | |
| | MM-2 | 61 | 0.21 | 7.32 | 38.5 | 34 | | | |
| | BIF | 31 | 0.26 | 7.60 | 38.75 | 38 | | | |
| | ERD-1 | 4 | 0.15 | 7.62 | 39 | 40 | | | |
| | Raw | | 0.90 | 7.90 | 38 | 43 | | | |
| 6-18 | MM-1 | 39 | 0.16 | 7.30 | 37.5 | 34 | | | |
| | MM-1 | 40 | 0.14 | 7.49 | 39.5 | 37 | | | |
| | MM-2 | 62 | 0.21 | 7.79 | 39 | 39 | | | |
| | BIF | 32 | 0.22 | 8.00 | 38.5 | 45 | | | |
| | ERD-1 | 4 | 0.14 | 7.90 | 40 | 42 | | | |
| | Raw | | 0.93 | 8.26 | 38 | 42 | | | |
| | ERD-1 | 4 | 0.11 | 8.39 | 39.5 | 42 | | | |
| | Raw | | 1.10 | 7.85 | 38 | 43 | | | |
| | MM-1 | 40 | 0.08 | 7.40 | 39 | 35 | | | |
| | MM-2 | 62 | 0.45 | 7.55 | 39 | 39 | | | |
| | BIF | 32 | 0.19 | 8.00 | 39 | 43 | | | |
| | ERD-1 | 5 | 0.45 | 7.92 | 39 | 42 | | | |
| | MM-1 | 40 | 0.85 | 7.40 | | 35 | | | |
| | MM-2 | 63 | 0.16 | 7.62 | 38.5 | 39 | | | |
| | BIF | 32 | 0.12 | 7.91 | 38.5 | 43 | | | |
| | ERD-1 | 5 | 0.10 | 7.90 | 39 | 43 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 6-19 | MM-2 | 63 | 0.14 | 7.55 | 39 | 39 | | | |
| | BIF | 33 | 0.25 | 8.05 | 38.5 | 42 | | | |
| | ERD-1 | 5 | 0.10 | 8.05 | 39 | 42 | | | |
| | Raw | | 0.89 | 8.00 | 38 | 42 | | | |
| | MM-2 | 64 | 0.20 | 7.58 | 39 | 38 | | | |
| | MM-1 | 41 | 0.09 | 7.40 | 39 | 35 | | | |
| | MM-2 | 64 | 0.22 | 7.56 | 39 | 39 | | | |
| | BIF | 33 | 0.18 | 7.88 | 39 | 43 | | | |
| | ERD-1 | 6 | 0.13 | 7.92 | 39 | 42 | | | |
| | Raw | | 0.93 | 7.98 | 38 | 42 | | | |
| | MM-2 | 64 | 0.11 | 7.10 | | 43 | | | |
| | BIF | 33 | 0.15 | 7.92 | | 43 | | | |
| | MM-1 | 41 | 0.08 | 7.25 | 39 | 36 | | | |
| | MM-2 | 65 | 0.07 | 7.20 | 39 | 36 | | | |
| | BIF | 34 | 0.30 | 8.00 | 38.5 | 43 | | | |
| | ERD-1 | 6 | 0.08 | 7.80 | 38.5 | 43 | | | |
| 6-20 | MM-2 | 65 | 0.11 | 7.33 | 39 | 34 | | | |
| | MM-1 | 41 | 0.09 | 7.20 | 38 | 37 | | | |
| | MM-2 | 66 | 0.13 | 7.20 | 40 | 36 | | | |
| | BIF | 34 | 0.22 | 8.00 | 38 | 45 | | | |
| | Raw | | 0.83 | 8.10 | 38 | 43 | | | |
| | MM-2 | 66 | 0.14 | 7.15 | 39 | 36 | | | |
| | MM-1 | 42 | 0.16 | 7.25 | 39 | 38 | | | |
| | MM-2 | 67 | 0.12 | 7.15 | 39 | 36 | | | |
| | BIF | 34 | 0.25 | 8.00 | 38 | 43 | | | |
| | ERD-2 | 19 | 0.30 | 7.85 | 39 | 41 | | | |
| | BIF | 34 | 0.15 | 8.00 | 38 | 43 | | | |
| | MM-2 | 67 | 0.12 | 7.21 | 39 | 36 | | | |
| | BIF | 35 | 0.15 | 7.60 | 38 | 43 | | | |
| | ERD-2 | 20 | 0.09 | 8.05 | 38.5 | 43 | | | |
| | MM-1 | 42 | 0.10 | 7.67 | 38 | 36 | | | |
| | MM-2 | 68 | 0.08 | 7.80 | 39 | 39 | | | |
| 6-21 | MM-1 | 42 | 0.08 | 7.40 | 39 | 35 | | | |
| | MM-2 | 68 | 0.10 | 7.45 | 39 | 37 | | | |
| | BIF | 35 | 0.22 | 7.99 | 38.5 | 43 | | | |
| | ERD-2 | 20 | 0.16 | 7.41 | 39.5 | 43 | | | |
| | Raw | | 1.30 | 8.00 | 38 | 43 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| | ERD-2 | 20 | 0.22 | 8.05 | 39.5 | 43 | | | |
| | BIF | 35 | 0.21 | 7.48 | 39.5 | 43 | | | |
| | Raw | | 1.30 | 7.95 | 38.5 | 43 | | | |
| | MM-1 | 42 | 0.06 | 7.35 | | 35 | | | |
| | MM-2 | 69 | 0.16 | 7.60 | | 40 | | | |
| | BIF | 36 | 0.20 | 7.80 | | 43 | | | |
| | ERD-2 | 21 | 0.09 | 7.95 | | 43 | | | |
| | MM-1 | 42 | 0.10 | 7.40 | 38 | 35 | | | |
| | MM-2 | 69 | 0.15 | 7.55 | | 40 | | | |
| | BIF | 36 | 0.15 | 8.15 | 38.5 | 43 | | | |
| | ERD-2 | 21 | 0.10 | 8.11 | 38.5 | 43 | | | |
| | MM-1 | 43 | 0.12 | 7.65 | 39 | 37 | | | |
| | MM-2 | 70 | 0.18 | 7.50 | 39 | 40 | | | |
| 6-22 | MM-1 | 43 | 0.07 | 7.40 | 40 | 35 | | | |
| | MM-2 | 70 | 0.20 | 7.50 | 40 | 34 | | | |
| | BIF | 36 | 0.25 | 7.85 | 39 | 41 | | | |
| | ERD-2 | 21 | 0.11 | 7.15 | 40 | 37 | | | |
| | Raw | | 0.98 | 7.75 | 38.5 | 40 | | | |
| 6-24 | Raw | | 0.70 | 7.90 | 37 | 41 | | | |
| | MM-1 | 44 | 0.09 | 7.35 | 39 | 38 | | | |
| | MM-2 | 71 | 0.12 | 7.50 | 41 | 39 | | | |
| | BIF | 37 | 0.16 | 7.90 | 38.5 | 41 | | | |
| | ERD-2 | 22 | 0.06 | 7.85 | 38.5 | 41 | | | |
| | MM-1 | 44 | 0.08 | 7.48 | 38.5 | 36 | | | |
| | MM-2 | 71 | 0.11 | 7.60 | 38.5 | 37 | | | |
| | BIF | 37 | 0.14 | 8.00 | 38.5 | 39 | | | |
| | ERD-2 | 22 | 0.07 | 7.95 | 39 | 42 | | | |
| | Raw | | 0.67 | 8.05 | 38 | 42 | | | |
| | BIF | 38 | 0.16 | 7.95 | 38.5 | 41 | | | |
| | MM-2 | 71 | 0.11 | 6.85 | 39 | 38 | | | |
| 6-25 | MM-1 | 44 | 0.10 | 7.50 | 39.5 | 37 | | | |
| | MM-2 | 7 | 0.11 | 7.65 | 39.5 | 38 | | | |
| | BIF | 38 | 0.21 | 7.95 | 39.5 | 40 | | | |
| | ERD-2 | 23 | 0.11 | 7.70 | 39.5 | 39 | | | |
| | Raw | | 0.62 | 8.00 | 39 | 41 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| | MM-1 | 44 | 0.20 | 7.52 | | 35 | | | |
| | MM-2 | 73 | 0.26 | 7.52 | 38.5 | 34 | | | |
| | BIF | 38 | 0.14 | 8.01 | | 41 | | | |
| | Raw | | 0.66 | 8.02 | 38 | 41 | | | |
| | MM-1 | 45 | 0.28 | 7.50 | 38.5 | 36 | | | |
| | MM-2 | 73 | 0.16 | 7.60 | 38.5 | 35 | | | |
| | BIF | 39 | 0.16 | 8.02 | 38.5 | 40 | | | |
| | ERD-2 | 20 | 0.07 | 8.00 | 38.5 | 40 | | | |
| | MM-1 | 45 | 0.11 | 7.55 | 39 | 34 | | | |
| | MM-2 | 73 | 0.32 | 7.60 | 39 | 35 | | | |
| | BIF | 39 | 0.09 | 8.00 | 39 | 41 | | | |
| | ERD-2 | 24 | 0.10 | 8.01 | 40 | 40 | | | |
| | Raw | | 0.67 | 7.99 | 38.5 | 40 | | | |
| 6-26 | MM-2 | 74 | 1.5 | 7.60 | 39 | 36 | | | |
| | BIF | 40 | 0.18 | 8.00 | 39 | 41 | | | |
| | MM-1 | 45 | 0.35 | 7.52 | 39 | 35 | | | |
| | BIF | 41 | 0.14 | 8.00 | 39 | 40 | | | |
| | ERD-2 | 25 | 0.08 | 8.02 | 39 | 39 | | | |
| | Raw | | 0.67 | 8.02 | 38 | 41 | | | |
| | BIF | 41 | 0.10 | 8.10 | | 43 | | | |
| | ERD-2 | 25 | 0.05 | 8.05 | | 43 | | | |
| | MM-1 | 45 | 0.70 | 7.90 | | 35 | | | |
| | MM-2 | 75 | 0.08 | 7.60 | 41 | 37 | | | |
| | Raw | | 3.00 | 7.99 | 41 | 43 | | | |
| | MM-1 | 46 | 0.07 | 7.40 | 40 | 34 | | | |
| | BIF | 42 | 0.30 | 8.02 | 40 | 41 | | | |
| | ERD-2 | 26 | 0.07 | 8.02 | 40 | 41 | | | |
| | MM-2 | Clear Well | 0.25 | 7.55 | | 37 | | | |
| | MM-1 | 46 | 0.10 | 7.50 | 39 | 34 | | | |
| | BIF | 42 | 0.13 | 8.05 | 39 | 42 | | | |
| | ERD-2 | 26 | 0.10 | 8.00 | 39.5 | 40 | | | |
| | Raw | | 0.67 | 8.10 | 38.5 | 43 | | | |
| 6-27 | BIF | 41 | 0.11 | 8.00 | 39 | 41 | | | |
| | ERD-2 | 26 | 0.09 | 7.99 | 39.5 | 40 | | | |
| | MM-1 | 46 | 0.33 | 7.45 | 39 | 35 | | | |
| | MM-1 | 47 | 0.14 | 7.50 | 39 | 37 | | | |
| | ERD-2 | 27 | 0.12 | 8.01 | 39.5 | 40 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| | MM-1 | 47 | 0.14 | 7.40 | 39 | 36 | | | |
| | ERD-2 | 27 | 0.11 | 8.00 | | 40 | | | |
| | Raw | | 0.62 | 8.01 | 40 | 42 | | | |
| | MM-1 | 47 | 0.33 | 7.45 | 39.5 | 35 | | | |
| | ERD-2 | 28 | 0.16 | 8.02 | 40 | 41 | | | |
| | Raw | | 0.66 | 8.05 | 39.5 | 42 | | | |
| 6-28 | MM-1 | 47 | 0.65 | 7.47 | | 34 | | | |
| | Raw | | 0.64 | 8.00 | 38.5 | 42 | | | |
| | MM-1 | 48 | 0.06 | 7.38 | 39.5 | 34 | | | |
| | BIF | 46 | 0.33 | 7.97 | 39.5 | 39 | | | |
| | ERD-2 | 28 | 0.08 | 7.99 | 40 | 40 | | | |
| | Raw | | | | | | | | |
| | Cloquet | | 2.80 | 7.93 | 42.5 | 40 | | | |
| | MM-2 | | | | | | | | |
| | Cloquet | 76 | 0.10 | 7.40 | 43.5 | 35 | | | |
| | BIF | 46 | 0.50 | 8.09 | | 41 | | | |
| | Raw | | 0.66 | 8.11 | 40 | 41 | | | |
| | Raw | | | | | | | | |
| | Cloquet | | 3.00 | 7.95 | 40 | 40 | | | |
| | MM-1 | 48 | 0.12 | 7.35 | 41.5 | 32 | | | |
| | MM-2 | | | | | | | | |
| | Cloquet | 76 | 0.07 | 7.42 | 43.5 | 34 | | | |
| | BIF | 47 | 0.20 | 8.05 | 40.5 | 40 | | | |
| | ERD-2 | 28 | 0.07 | 8.02 | 41 | 42 | | | |
| | MM-1 | 48 | 0.38 | 7.36 | 41.5 | 34 | | | |
| | MM-2 | | | | | | | | |
| | Cloquet | 76 | 0.13 | 7.45 | 43.5 | 36 | | | |
| | BIF | 47 | 0.34 | 8.05 | 41 | 41 | | | |
| | MM-1 | 49 | 0.11 | 7.40 | 41 | 35 | | | |
| | ERD-2 | 29 | 0.11 | 8.00 | 40.5 | 42 | | | |
| 6-29 | MM-1 | 49 | 0.06 | 7.48 | 40.5 | 35 | | | |
| | BIF | 48 | 0.26 | 8.00 | 40.5 | 41 | | | |
| | ERD-2 | 29 | 0.13 | 8.10 | 41.5 | 40 | | | |
| | Raw | | 0.65 | 8.05 | 40.5 | 42 | | | |
| 7-1 | MM-1 | 50 | 0.07 | 7.55 | 39.5 | 36 | | | |
| | BIF | 49 | 0.21 | 8.07 | 39.5 | 42 | | | |
| | ERD-2 | 30 | 0.15 | 8.02 | 39.5 | 41 | | | |
| | Raw | | 0.77 | 8.01 | 39.5 | 42 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Alumi-num, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| | MM-1 | 50 | 0.14 | 7.60 | 40 | 35 | | | |
| | BIF | 49 | 0.33 | 8.00 | 40 | 41 | | | |
| | ERD-2 | 30 | 0.22 | 8.04 | 39.5 | 41 | | | |
| | Raw | | 0.75 | 7.99 | 38.5 | 42 | | | |
| 7-2 | MM-1 | 50 | 0.30 | 7.23 | 40 | 32 | | | |
| | BIF | 49 | 0.40 | 7.60 | 40 | 43 | | | |
| | ERD-2 | 30 | 0.10 | 7.90 | 39.5 | 43 | | | |
| | MM-1 | 51 | 0.15 | 7.29 | 43 | 30 | | | |
| | BIF | 49 | 0.28 | 8.02 | 42.5 | 43 | | | |
| | ERD-2 | 30 | 0.13 | 7.94 | 43.5 | 44 | | | |
| | Raw | | 0.61 | 8.01 | 42 | 43 | | | |
| | BIF | 49 | 0.35 | 7.85 | 39.5 | 43 | | | |
| | MM-1 | 51 | 0.10 | 7.50 | 40 | 32 | | | |
| | MM-2 | 77 | 2.5 | 7.45 | 40 | 34 | | | |
| | BIF | 50 | 0.35 | 7.90 | 40 | 42 | | | |
| | ERD-2 | 30 | 0.13 | 7.90 | 39.5 | 42 | | | |
| | Raw | | 0.85 | 7.99 | 39.5 | 43 | | | |
| 7-3 | MM-1 | 51 | 0.10 | 7.48 | | 32 | | | |
| | MM-1 | 52 | 0.05 | 7.50 | 40 | 32 | | | |
| | MM-2 | 77 | 0.10 | 7.47 | 40 | 34 | | | |
| | BIF | 50 | 0.55 | 7.91 | 40 | 42 | | | |
| | ERD-2 | 31 | 0.15 | 7.90 | 40 | 42 | | | |
| | MM-1 | 52 | 0.08 | 7.35 | 40.5 | 31 | | | |
| | MM-2 | 78 | 0.08 | 7.50 | 41.5 | 34 | | | |
| | BIF | 51 | 0.27 | 8.15 | 41 | 42 | | | |
| | ERD-2 | 32 | 0.17 | 7.80 | 41 | 42 | | | |
| | Raw | | 0.77 | 8.00 | 40 | 41 | | | |
| | BIF | 51 | 0.24 | 8.12 | 44.5 | 41 | | | |
| | Raw | | 0.85 | 8.01 | 41 | 41 | | | |
| | MM-1 | 53 | 0.09 | 7.40 | 43.5 | 32 | | | |
| | MM-2 | 78 | 0.12 | 7.48 | 43.5 | 34 | | | |
| | BIF | 52 | 0.32 | 8.05 | 41.5 | 41 | | | |
| | ERD-2 | 32 | 0.17 | 7.85 | 44 | 40 | | | |
| 7-4 | MM-1 | 53 | 0.05 | 7.20 | | 32 | | | |
| | MM-1 | 54 | 0.09 | 6.90 | 40 | 29 | | | |
| | MM-2 | 78 | 0.06 | 7.33 | 41 | 35 | | | |
| | BIF | 52 | 0.28 | 7.52 | 40 | 41 | | | |
| | ERD-2 | 32 | 0.14 | 7.62 | 41 | 41 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 7-4 b | MM-1 | 54 | 0.07 | 6.49 | 41.5 | 31 | | | |
| b | MM-2 | 79 | 0.09 | 6.70 | 41.5 | 35 | | | |
| b | BIF | 52 | 0.18 | 7.15 | 41.5 | 41 | | | |
| | ERD-2 | 33 | 0.12 | 7.72 | 41.5 | 40 | | | |
| b | Raw | | 0.59 | 7.05 | 41 | 40 | | | |
| | | | | | | | | | |
| b | MM-1 | 55 | 0.28 | 6.51 | 40.5 | 32 | | | |
| b | MM-2 | 79 | 0.18 | 6.65 | 41 | 35 | | | |
| b | BIF | 52 | 0.44 | 7.13 | 40.5 | 40 | | | |
| b | ERD-2 | 33 | 0.11 | 7.00 | 41 | 38 | | | |
| b | Raw | | 0.61 | 7.10 | 41 | 40 | | | |
| | | | | | | | | | |
| 7-5 b | MM-1 | 55 | 0.12 | 6.50 | 41 | 32 | | | |
| b | MM-2 | 79 | 0.06 | 6.67 | 41 | 34 | | | |
| b | BIF | 52 | 0.20 | 7.20 | 40.5 | 40 | | | |
| b | ERD-2 | 33 | 0.09 | 7.10 | 40.5 | 40 | | | |
| | | | | | | | | | |
| 7-8 | MM-1 | 56 | 0.14 | 7.30 | 40 | 32 | | | |
| | MM-2 | 80 | 0.35 | 7.55 | 40 | 37 | | | |
| | BIF | 53 | 0.05 | 7.60 | 40 | 43 | | | |
| | ERD-2 | 34 | 0.14 | 7.93 | 40 | 43 | | | |
| | Raw | | 0.68 | 7.98 | | 43 | | | |
| | | | | | | | | | |
| | BIF | 53 | 0.30 | 7.65 | | 43 | | | |
| | MM-1 | 56 | 0.05 | 7.15 | 39 | 32 | | | |
| | MM-2 | 80 | 0.08 | 7.33 | 39 | 39 | | | |
| | BIF | 54 | 0.25 | 7.85 | 39 | 43 | | | |
| | ERD-2 | 34 | 0.05 | 7.86 | 39 | 43 | | | |
| | | | | | | | | | |
| 7-9 | MM-1 | 56 | 0.19 | 7.12 | 40 | 31 | | | |
| | MM-2 | 80 | 0.09 | 7.55 | 40 | 37 | | | |
| | MM-1 | 57 | 0.08 | 7.15 | 40 | 30 | | | |
| | MM-2 | 81 | 0.09 | 7.53 | 40.5 | 38 | | | |
| | BIF | 54 | 0.20 | 8.01 | 40.5 | 41 | | | |
| | ERD-2 | 34 | 0.10 | 8.08 | 40.5 | 44 | | | |
| | Raw | | 0.68 | 7.98 | 39.5 | 43 | | | |
| | | | | | | | | | |
| | MM-1 | 57 | 0.07 | 6.92 | 39.5 | 37 | | | |
| | BIF | 54 | 0.20 | 7.30 | 40 | 44 | | | |
| | ERD-2 | 34 | 0.07 | 7.43 | 40 | 44 | | | |
| | Raw | | 0.67 | 7.55 | 39.5 | 44 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| | ERD-2 | 34 | 0.08 | 7.48 | | 44 | | | |
| | MM-1 | 57 | 0.14 | 6.75 | | 30 | | | |
| | MM-1 | 58 | 0.60 | 7.23 | 55 | 30 | | | |
| | MM-2 | 82 | 1.80 | 7.67 | 55 | 40 | | | |
| | BIF | 54 | 0.25 | 8.10 | 55 | 44 | | | |
| | ERD-2 | 35 | 0.19 | 8.13 | 55 | 44 | | | |
| | Raw | | 0.99 | 8.11 | 55 | 44 | | | |
| 7-10 | MM-2 | 82 | 2.1 | 7.10 | 50 | 38 | 41 | | |
| | MM-1 | 58 | 0.43 | 7.05 | 49 | 29 | 46 | | |
| | MM-2 | 83 | 2.1 | 7.50 | 48 | 38 | 44 | | |
| | BIF | 55 | 0.32 | 8.00 | 48 | 42 | 47 | | |
| | ERD-2 | 35 | 0.15 | 7.90 | 50 | 43 | 45 | | |
| | Raw | | 0.90 | 7.99 | 47 | 43 | 44 | | |
| | BIF | 55 | 0.41 | 7.99 | 51.5 | 42 | 45 | | |
| | MM-2 | 84 | 1.60 | 7.43 | 48.5 | 37 | 47 | | |
| | MM-1 | 59 | 0.40 | 7.99 | 48.5 | 41 | 42 | | |
| | MM-2 | 84 | 0.11 | 7.50 | 48.5 | 34 | 42 | | |
| | BIF | 56 | 0.38 | 7.95 | 48 | 44 | 42 | | |
| | MM-1 | 59 | 0.06 | 7.15 | | 29 | 47 | | |
| | BIF | 56 | 0.30 | 8.05 | 47 | 44 | 43 | | |
| | MM-2 | 84 | 0.05 | 7.50 | | 37 | 45 | | |
| | ERD-2 | 35 | 0.08 | 8.12 | 46 | 44 | 45 | | |
| | MM-2 | 85 | 0.30 | 7.70 | 46.5 | 43 | | | |
| 7-11 | MM-1 | 60 | 0.11 | 7.50 | 44 | 32 | 44 | | 0 |
| | MM-2 | 85 | 0.07 | 7.53 | 45 | 39 | 44 | | |
| | BIF | 57 | 0.17 | 7.95 | 44 | 45 | 44 | | |
| | ERD-2 | 35 | 0.12 | 7.86 | 46 | 45 | 44 | | |
| | Raw | | 0.71 | 7.90 | 43 | 45 | 44 | | 0.02 |
| | MM-2 | 85 | 0.12 | 7.53 | 44 | 39 | 44 | | |
| | MM-1 | 60 | 0.17 | 7.31 | 44 | 31 | 44 | | 0 |
| | MM-1 | 61 | 0.20 | 7.38 | 44 | 34 | 44 | | 0.02 |
| | MM-2 | 86 | 0.09 | 7.52 | 44 | 39 | 44 | | |
| | BIF | 57 | 0.27 | 7.90 | 44 | 45 | 44 | | |
| | BIF | 57 | 0.31 | 7.95 | | 45 | 45 | | |
| | MM-2 | 87 | 0.09 | 7.62 | 46 | 39 | 44 | | |
| | Raw | | 2.10 | 8.12 | 47 | 45 | 44 | | 0.03 |
| | MM-1 | 61 | 0.10 | 7.40 | 45 | 34 | 44 | | 0 |
| | MM-2 | 87 | 0.15 | 7.70 | 46 | 39 | 44 | | |
| | BIF | 58 | 0.40 | 7.92 | 46.5 | 45 | 44 | | |
| | ERD-2 | 36 | 0.10 | 7.91 | 46 | 45 | 44 | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 7-12 | MM-1 | 61 | 0.09 | 7.38 | 45 | 33 | 44 | | 0.03 |
| | MM-2 | 87 | 0.10 | 7.58 | 45 | 40 | 44 | | |
| | BIF | 58 | 0.26 | 7.82 | 44.5 | 45 | 44 | | |
| | ERD-2 | 36 | 0.12 | 7.80 | 46 | 45 | 44 | | |
| | Raw | | 1.0 | 7.92 | 44 | 44 | 44 | | 0.02 |
| | MM-2 | 87 | 0.14 | 7.60 | 44 | 39 | 44 | | |
| | BIF | 58 | 0.33 | 7.81 | 43.5 | 44 | 44 | | |
| | MM-1 | 62 | 0.09 | 7.39 | 45 | 32 | 44 | | 0.02 |
| | MM-2 | 88 | 0.12 | 7.72 | 44 | 39 | 44 | | |
| | BIF | 59 | 0.36 | 7.80 | 44 | 44 | 44 | | |
| | ERD-2 | 36 | 0.15 | 7.80 | 44.5 | 44 | 44 | | |
| | MM-2 | 88 | 0.08 | 7.61 | | 40 | 44 | | |
| | MM-1 | 62 | 0.07 | 7.40 | | 34 | 44 | | 0.03 |
| | MM-2 | 89 | 0.08 | 7.62 | 47 | 39 | 44 | | |
| | BIF | 59 | 0.25 | 7.85 | 45 | 44 | 44 | | |
| | ERD-2 | 36 | 0.10 | 7.91 | 46 | 44 | 44 | | |
| | MM-1 | 63 | 0.12 | 7.39 | 47 | 33 | 44 | | 0.03 |
| 7-13 | MM-2 | 89 | 0.10 | 7.65 | 45 | 38 | 44 | | |
| | MM-1 | 63 | 0.12 | 7.55 | 44 | 32 | 44 | | 0.03 |
| | BIF | 60 | 0.36 | 7.94 | 43.5 | 43 | 44 | | |
| | ERD-2 | 36 | 0.12 | 7.90 | 45 | 42 | 44 | | |
| | Raw | | 0.73 | 7.80 | 43 | 43 | 43 | | 0.02 |
| 7-15 | Raw | | 0.80 | 7.95 | 41 | 42 | 44 | | 0.03 |
| | MM-1 | 64 | 0.27 | 7.63 | 42 | 38 | 45 | | 0.04 |
| | MM-2 | 90 | 0.20 | 7.70 | 42 | 37 | 44 | | |
| | BIF | 61 | 0.62 | 8.00 | 42 | 43 | 44 | | |
| | ERD-2 | 37 | 0.20 | 7.90 | 42 | 42 | 44 | | |
| | MM-1 | 64 | 0.07 | 7.48 | 43.5 | 36 | 44 | | 0.04 |
| | MM-2 | 90 | 0.07 | 7.80 | 43 | 38 | 45 | | |
| | BIF | 61 | 0.35 | 8.02 | 42.5 | 42 | 44 | | |
| | ERD-2 | 37 | 0.08 | 7.90 | 44 | 41 | 44 | | |
| | Raw | | 0.63 | 8.00 | 42 | 43 | 43 | | 0.03 |
| 7-16 | Raw | | 0.70 | 7.95 | 42 | 42 | 43 | | 0.03 |
| | MM-1 | 64 | 0.07 | 7.65 | 43.5 | 38 | 44 | | 0.04 |
| | MM-2 | 91 | 0.06 | 7.70 | 43 | 38 | 44 | | |
| | BIF | 61 | 0.28 | 7.85 | 43 | 41 | 44 | | |
| | ERD-2 | 37 | 0.09 | 7.90 | 43.5 | 42 | 44 | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 7-16 | MM-1 | 65 | 0.25 | 7.45 | 41 | 35 | 44 | | 0.06 |
| | MM-2 | 92 | 0.15 | 7.67 | 41 | 38 | 44 | | |
| | BIF | 62 | 0.72 | 7.95 | 41 | 43 | 44 | | |
| | ERD-2 | 38 | 0.13 | 7.90 | 41 | 42 | 44 | | |
| | Raw | | 0.70 | 8.00 | 41 | 43 | 43 | | 0.03 |
| | MM-1 | 65 | 0.10 | 7.50 | 43 | 34 | 44 | | 0.02 |
| | MM-2 | 92 | 0.06 | 7.60 | 43 | 35 | 45 | | |
| | BIF | 63 | 0.12 | 7.99 | 43 | 43 | 44 | | |
| | ERD-2 | 38 | 0.06 | 7.89 | 43 | 42 | 44 | | |
| 7-17 | Raw | | 0.81 | 8.00 | 42 | 44 | 43 | | 0.02 |
| | MM-1 | 65 | 0.08 | 7.60 | 43 | 35 | 44 | | 0.02 |
| | ERD-2 | 38 | 0.09 | 7.90 | 43 | 42 | 44 | | |
| | Raw | | 0.65 | 7.70 | 43 | 43 | 44 | | 0.20 |
| | MM-1 | 65 | 0.20 | 7.60 | 43 | 38 | 44 | | 0.05 |
| | BIF | 64 | 0.16 | 8.00 | 43 | 45 | 44 | | |
| | ERD-2 | 38 | 0.11 | 7.82 | 43 | 43 | 44 | | |
| | MM-1 | 66 | 0.05 | 7.70 | 43.5 | 39 | 44 | | 0.06 |
| | MM-2 | 93 | 0.06 | 7.82 | 44 | 38 | 44 | | |
| | BIF | 64 | 0.12 | 8.15 | 44 | 43 | 44 | | |
| | ERD-2 | 38 | 0.10 | 7.98 | 44 | 44 | 44 | | |
| | Raw | | 0.67 | 7.95 | 42 | 43 | 44 | | 0.02 |
| 7-18 | MM-2 | 93 | 0.07 | 7.80 | 44 | 38 | 44 | | |
| | MM-1 | 66 | 0.09 | 7.74 | 43.5 | 39 | 44 | | 0.05 |
| | MM-2 | 94 | 0.10 | 7.85 | 43.5 | 39 | 44 | | |
| | BIF | 65 | 0.09 | 7.99 | 44 | 42 | 44 | | |
| | ERD-2 | 39 | 0.10 | 7.95 | 43.5 | 43 | 44 | | |
| | Raw | | 0.70 | 8.00 | 42 | 42 | 44 | | 0.02 |
| | Raw | | 0.73 | 8.00 | 42 | 43 | 44 | | 0.02 |
| | MM-1 | 66 | 0.12 | 7.75 | 44 | 39 | 44 | | 0.04 |
| | MM-2 | 94 | 0.09 | 7.80 | 44 | 39 | 44 | | |
| | BIF | 66 | 0.14 | 8.10 | 44 | 42 | 44 | | |
| | ERD-2 | 39 | 0.11 | 7.91 | 44 | 39 | 44 | | |
| | MM-2 | 94 | 0.10 | 7.85 | 43 | 39 | 44 | | |
| | BIF | 66 | 0.30 | 8.02 | 43 | 41 | 44 | | |
| | MM-1 | 67 | 0.08 | 7.75 | 42 | 38 | 44 | | 0.03 |
| | MM-2 | 95 | 0.56 | 7.90 | 42 | 39 | 44 | | |
| | ERD-2 | 39 | 0.12 | 7.98 | 42 | 43 | 44 | | |
| | Raw | | 0.79 | 8.00 | 41 | 42 | 44 | | 0.02 |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 7-19 | ERD-2 | 39 | 0.11 | 8.00 | 42 | 41 | 44 | | |
| | Raw | | 0.86 | 7.99 | 41 | 42 | 44 | | 0.02 |
| | MM-1 | 67 | 0.09 | 7.70 | 42 | 38 | 44 | | 0.03 |
| | MM-2 | 95 | 0.70 | 7.85 | 42 | 39 | 45 | | |
| | BIF | 69 | 0.34 | 8.10 | 42 | 42 | 44 | | |
| | ERD-2 | 40 | 0.08 | 7.95 | 42 | 41 | 44 | | |
| | MM-1 | 67 | 0.11 | 7.65 | 42 | 39 | 44 | | 0.02 |
| | MM-2 | 96 | 0.16 | 7.62 | 42 | 41 | 44 | | |
| | BIF | 70 | 0.25 | 7.90 | 42 | 44 | 44 | | |
| | ERD-2 | 40 | 0.08 | 7.92 | 42 | 44 | 44 | | |
| | Raw | | 0.88 | 7.92 | 41 | 44 | 43 | | 0.06 |
| | MM-1 | 68 | 0.10 | 7.7 | 50 | 39 | 44 | | 0.08 |
| | MM-2 | 97 | 0.30 | 7.8 | 50 | 41 | 44 | | |
| | BIF | 70 | 0.26 | 8.05 | 50 | 45 | 45 | | |
| | ERD-2 | 40 | 0.10 | 8.0 | 50 | 44 | 44 | | |
| | Raw | | 0.64 | 7.92 | 49 | 45 | 43 | | 0.08 |
| 7-20 | BIF | 70 | 0.32 | 8.01 | 48 | 45 | 45 | | |
| | MM-1 | 68 | 0.12 | 7.8 | 47 | 39 | 44 | | 0.02 |
| | MM-2 | 97 | 0.22 | 7.75 | 48 | 42 | 44 | | |
| | ERD-2 | 40 | 0.16 | 7.82 | 47.5 | 43 | 44 | | |
| | Raw | | 0.73 | 8.00 | 47 | 42 | 43 | | 0.03 |
| 7-22 | MM-1 | 69 | 0.06 | 7.75 | 51.5 | 39 | 44 | | 0.02 |
| | MM-2 | 98 | 0.07 | 7.80 | 52 | 39 | 44 | | |
| | BIF | 71 | 0.14 | 8.00 | 51.5 | 44 | 44 | | |
| | ERD-2 | 41 | 0.06 | 7.90 | 52 | 43 | 44 | | |
| | Raw | | 0.53 | 8.01 | 50.5 | 43 | 43 | | 0.02 |
| | MM-1 | 69 | 0.08 | 7.80 | 50 | 38 | 44 | | 0.02 |
| | MM-2 | 98 | 0.08 | 7.85 | 51 | 39 | 44 | | |
| | BIF | 71 | 0.15 | 8.02 | 50 | 44 | 44 | | |
| | ERD-2 | 41 | 0.11 | 7.95 | 50.5 | 41 | 44 | | |
| | Raw | | 0.63 | 8.05 | 49 | | 44 | | 0.02 |
| 7-23 | Raw | | 0.60 | 8.00 | 49 | 43 | 44 | | 0.03 |
| | MM-1 | 69 | 0.13 | 7.80 | 51 | 39 | 44 | | 0.06 |
| | BIF | 71 | 0.17 | 8.02 | 51 | 43 | 44 | | |
| | ERD-2 | 41 | 0.21 | 7.95 | 51 | 41 | 44 | | |
| | MM-2 | 98 | 0.22 | 7.80 | 51 | 38 | 44 | | 0.03 |

APPENDIX A-3(CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Alumi-num, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 7-23 | MM-1 | 70 | 0.07 | 7.65 | 46 | 38 | 44 | | 0.03 |
| | MM-2 | 99 | 0.11 | 7.70 | 46 | 39 | 44 | | 0.03 |
| | BIF | 72 | 0.18 | 7.95 | 46 | 42 | 44 | | |
| | ERD-2 | 41 | 0.11 | 7.99 | 46 | 42 | 44 | | |
| | Raw | | 0.58 | 8.00 | 45 | 43 | 44 | | 0.02 |
| | Raw | | 0.60 | 8.01 | 47.5 | 44 | 44 | | 0.02 |
| | MM-1 | 70 | 0.06 | 7.70 | 48.5 | 39 | 44 | | 0.03 |
| | MM-2 | 99 | 0.10 | 7.73 | 48.5 | 38 | 44 | | 0.03 |
| | BIF | 72 | 0.21 | 8.00 | 49 | 44 | 44 | | |
| | ERD-2 | 42 | 0.06 | 7.95 | 48.5 | 42 | 44 | | |
| 7-24 | MM-2 | 100 | 0.11 | 7.65 | 49.5 | 38 | 44 | 0.017 | |
| | BIF | 72 | 0.13 | 7.98 | 50 | 44 | 44 | | |
| | ERD-2 | 42 | 0.09 | 7.98 | 50 | 43 | 44 | | |
| | Raw | | 0.68 | 7.96 | 49 | 43 | 44 | 0.033 | |
| | MM-1 | 71 | 0.23 | 7.58 | 50 | 38 | 44 | 0.025 | |
| | Raw | | 0.78 | 8.00 | 53 | 44 | 44 | | |
| | MM-1 | 71 | 0.07 | 7.53 | 53 | 38 | 44 | | |
| | MM-2 | 100 | 0.09 | 7.52 | 53 | 39 | 44 | | |
| | BIF | 73 | 0.18 | 7.90 | 53 | 44 | 45 | | |
| | ERD-2 | 42 | 0.11 | 7.90 | 52.5 | 44 | 44 | | |
| | BIF | 72 | 0.14 | 7.92 | 54 | 44 | 44 | | |
| | ERD-2 | 42 | 0.18 | 7.95 | 54 | 44 | 44 | | |
| | MM-2 | 100 | 0.08 | 7.65 | 54 | 38 | 44 | | |
| | MM-1 | 71 | 0.08 | 7.58 | 54 | 38 | 44 | | |
| | MM-2 | 101 | 0.13 | 7.60 | 54 | 38 | 44 | | |
| | BIF | 73 | 0.17 | 7.89 | 54 | 43 | 43 | | |
| | ERD-2 | 43 | 0.12 | 7.90 | 54 | 43 | 44 | | |
| | Raw | | 0.89 | 7.99 | | 43 | 43 | | |
| 7-25 | Raw | | 0.84 | 7.70 | 52.5 | 44.0 | 44 | | 0.06 |
| | MM-1 | 72 | 0.15 | 7.40 | 53 | 47.0 | 47 | | 0.03 |
| | MM-2 | 101 | 0.20 | 7.32 | 53.5 | 46.0 | 46 | | 0.02 |
| | BIF | 73 | 0.21 | 7.72 | 53.5 | 46.0 | 46 | | |
| | ERD-2 | 43 | 0.15 | 7.70 | 54 | 47.0 | 47 | | |
| | MM-1 | 72 | 0.07 | 7.60 | 53 | 48.0 | 48 | | |
| | MM-2 | 101 | 0.09 | 7.70 | 54 | 48.0 | 48 | | 0.02 |
| | BIF | 73 | 0.23 | 8.00 | 54 | 48.0 | 48 | | |
| | ERD-2 | 43 | 0.09 | 8.00 | 54 | 45.0 | 45 | | |
| | Raw | | 0.66 | 8.00 | 53 | 46.0 | 46 | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 7-25 | BIF | 73 | 0.19 | 8.10 | 51 | 46.0 | 46 | | |
| | ERD-2 | 43 | 0.14 | 8.10 | 54 | 48.0 | 48 | | |
| 7-26 | Raw | | 0.66 | 8.10 | 52 | 45.0 | 45 | | |
| | MM-1 | 73 | 0.12 | 7.50 | | 49.0 | 47 | | |
| | MM-2 | 103 | 0.17 | 7.70 | 53 | 46.0 | 46 | | |
| | BIF | 74 | 0.19 | 8.00 | 53 | 47.0 | 47 | | |
| | ERD-2 | 44 | 0.12 | 7.90 | 53 | 44.0 | 48 | | |
| | MM-2 | 102 | 0.36 | 7.32 | 51 | 43 | 45 | 0.035 | |
| | BIF | 74 | 0.21 | 7.75 | 50 | 45 | 44 | 0.079 | |
| | MM-1 | 73 | 0.08 | 7.28 | 45 | 41 | 44 | 0.026 | |
| | MM-2 | 103 | 0.06 | 7.32 | 44 | 42 | 45 | 0.036 | |
| | BIF | 75 | 0.11 | 7.78 | 44 | 45 | 45 | 0.030 | |
| | ERD-2 | 44 | 0.16 | 7.60 | 45 | 45 | 46 | 0.054 | |
| | Raw | | 0.58 | 7.75 | 43 | 42 | 45 | 0.007 | |
| | MM-1 | 73 | 0.05 | 7.42 | 43 | 39 | 45 | 0.013 | |
| | MM-2 | 103 | 0.09 | 7.46 | 43 | 38 | 45 | 0.028 | |
| | BIF | 75 | 0.11 | 7.90 | 43 | 42 | 45 | 0.045 | |
| | ERD-2 | 44 | 0.13 | 7.85 | 43.5 | 43 | 45 | 0.039 | |
| | Raw | | 0.54 | 7.95 | 42 | 43 | 46 | 0.005 | |
| 7-27 | MM-1 | 73 | 0.13 | 7.40 | 44 | 38 | 47 | 0.019 | |
| | MM-2 | 103 | 0.44 | 7.30 | 44 | 40 | 46 | 0.047 | |
| | BIF | 75 | 0.15 | 7.75 | 44 | 44 | 47 | 0.065 | |
| | Raw | | 0.55 | 7.70 | 40 | 43 | 47 | 0.031 | |
| 7-29 | Raw | | 0.64 | 7.80 | 39.5 | 41 | 48 | | |
| | MM-1 | 74 | 0.09 | 7.25 | | 42 | 46 | | |
| | MM-2 | 104 | 0.08 | 7.40 | 40 | 42 | 49 | | |
| | BIF | 76 | 0.10 | 7.80 | 40.5 | 38 | 46 | | |
| | ERD-2 | 45 | 0.09 | 8.00 | 41 | 42 | 47 | 0.005 | |
| | MM-1 | 74 | 0.13 | 7.10 | 41 | 46 | 63 | 0.007 | |
| | MM-2 | 104 | 0.24 | 7.20 | 42 | 43 | 64 | 0.007 | |
| | BIF | 76 | 0.11 | 7.40 | 42 | 42 | 47 | 0.007 | |
| | ERD-2 | 45 | 0.11 | 7.60 | 42 | 40 | 59 | | |
| | Raw | | 0.75 | 7.30 | 40.5 | 39 | 54 | 0.011 | |
| | BIF | 77 | 0.14 | 7.60 | | 43 | 65 | 0.017 | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Alumi-num, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 7-30 | MM-1 | 74 | 0.12 | 7.20 | 41 | 39 | 53 | | |
| | MM-2 | 104 | 0.40 | 7.20 | 41 | 37 | 49 | | |
| | BIF | 77 | 0.13 | 7.80 | 40 | 37 | 53 | | |
| | ERD-2 | 45 | 0.10 | 7.60 | 41 | 43 | 65 | | |
| | Raw | | 0.76 | 8.00 | 39.5 | 44 | 50 | 0.005 | |
| | Raw | | 0.72 | 7.90 | 41.5 | 40 | 65 | | |
| | MM-1 | 74 | | 7.40 | 40.5 | 40 | 42 | 0.019 | |
| | MM-2 | 105 | 0.09 | 7.52 | 40 | 39 | 42 | 0.019 | |
| | BIF | 77 | 0.11 | 8.02 | 40 | 46 | 43 | 0.025 | |
| | ERD-2 | 45 | 0.14 | 8.05 | 40 | 43 | 43 | 0.017 | |
| | Raw | | 0.76 | 7.79 | 40.5 | 43 | 40 | 0.015 | |
| | MM-1 | 74 | 0.11 | 7.07 | 40.5 | 38 | 42 | 0.013 | |
| | MM-2 | 105 | 0.06 | 7.18 | 41 | 39 | 43 | 0.019 | |
| | BIF | 77 | 0.09 | 7.60 | 40 | 44 | 42 | 0.026 | |
| | ERD-2 | 45 | 0.17 | 7.60 | 40.5 | 42 | 44 | 0.014 | |
| | Raw | | 0.79 | 7.59 | 40 | 43 | 44 | 0.017 | |
| 7-31 | MM-1 | 75 | 0.07 | 7.30 | 45 | 35 | 52 | 0.013 | |
| | MM-2 | 105 | 0.16 | 7.50 | 42 | 38 | 84 | 0.031 | |
| | BIF | 77 | 0.08 | 7.75 | 41 | 42 | 69 | | |
| | ERD-2 | 45 | 0.09 | 7.80 | 44 | 35 | 76 | 0.011 | |
| | Raw | | 0.83 | 7.80 | 40 | 44 | 59 | | |
| | Raw Cloquet | | 3.6 | 7.70 | 45 | 46 | 63 | | |
| | MM-1 | 75 | 0.08 | 7.35 | | 35 | 63 | 0.021 | |
| | MM-2 Cloquet | 106 | 0.05 | 7.30 | 45 | 43 | 75 | 0.013 | |
| | BIF | 75 | 0.10 | 7.70 | 39.5 | 42 | 70 | | |
| | ERD-2 | 46 | 0.10 | 7.80 | 40 | 45 | 68 | | |
| | Raw | | 0.78 | 7.70 | 40 | 44 | 75 | 0.011 | |
| | Raw | | 0.82 | 7.80 | 41 | 39 | 55 | 0.001 | |
| | MM-1 | 75 | 0.12 | 7.40 | 41.5 | 44 | 79 | 0.011 | |
| | MM-2 | 107 | 0.12 | 7.40 | 42 | 41 | 69 | 0.021 | |
| | BIF | 78 | 0.10 | 7.50 | 41.5 | 35 | 51 | 0.038 | |
| | ERD-2 | 46 | 0.11 | 7.60 | 41.5 | 36 | 53 | 0.021 | |
| 8-1 | MM-1 | 75 | 0.35 | 7.30 | 42.5 | 42 | 38 | 0.021 | |
| | MM-2 | 107 | 0.06 | 7.20 | 42 | 36 | 42 | 0.021 | |
| | BIF | 78 | 0.08 | 7.85 | 41.5 | 38 | 45 | 0.009 | |
| | ERD-2 | 46 | 0.12 | 7.90 | 42 | 54 | 35 | 0.026 | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 8-1 | Raw | | 0.88 | 7.80 | 40.5 | 45 | 44 | 0.011 | |
| | MM-1 | 76 | 0.08 | 7.60 | 41.5 | 36 | 44 | 0.011 | |
| | MM-2 | 107 | 0.07 | 7.45 | 42 | 36 | 45 | 0.025 | |
| | BIF | 79 | 0.19 | 7.95 | 41 | 43 | 44 | | |
| | ERD-2 | 46 | 0.13 | 7.80 | 42 | 44 | 45 | | |
| | Raw | | 0.94 | 7.80 | 42 | 46 | 46 | | |
| | Raw | | 1.04 | 7.80 | 42 | 44 | 48 | | |
| | MM-1 | 76 | 0.14 | 7.50 | | 35 | 44 | 0.026 | |
| | MM-2 | 107 | 0.14 | 7.50 | 42 | 36 | 45 | 0.038 | |
| | BIF | 79 | 0.17 | 7.90 | 42 | 43 | 45 | | |
| | ERD-2 | 47 | 0.16 | 7.80 | 42 | 43 | 45 | | |
| 8-2 | MM-1 | 76 | 0.07 | 7.35 | 42.5 | 36 | 44 | 0.021 | |
| | MM-2 | 108 | 0.08 | 7.50 | 42.5 | 40 | 45 | 0.045 | |
| | BIF | 79 | 0.16 | 7.80 | 42.5 | 44 | 42 | | |
| | ERD-2 | 47 | 0.11 | 7.80 | 42.5 | 42 | 46 | | |
| | Raw | | 1.1 | | 41.5 | | | | |
| | MM-1 | 76 | 0.12 | 7.50 | 40 | 38 | 44 | 0.073 | |
| | BIF | 79 | 0.12 | 7.90 | 48 | 42 | 45 | | |
| | Raw | | 0.90 | 8.00 | 49 | 45 | 43 | 0.015 | |
| | MM-1 | 77 | 0.13 | 7.50 | 48 | 39 | 44 | 0.023 | |
| | MM-2 | 108 | 0.07 | 7.65 | 48 | 37 | 46 | 0.023 | |
| | ERD-2 | 47 | 0.16 | 7.90 | 48.5 | 42 | 44 | | |
| | MM-1 | 77 | 0.06 | 7.50 | 48.5 | 35 | 46 | 0.019 | |
| | MM-2 | 108 | 0.09 | 7.50 | 49 | 37 | 45 | 0.019 | |
| | BIF | 80 | 0.37 | 7.90 | | 42 | 44 | | |
| | ERD-2 | 47 | 0.13 | 7.80 | 50 | 44 | 44 | | |
| | Raw | | 1.12 | 7.99 | 48 | 45 | 45 | 0.021 | |
| 8-3 | MM-1 | 77 | 0.06 | 7.55 | | 38 | 46 | 0.006 | |
| | MM-2 | 108 | 0.12 | 7.39 | 49 | 36 | 44 | 0.017 | |
| | Raw | | 0.87 | 8.00 | 48 | 45 | 44 | 0.017 | |
| 8-5 | MM-1 | 78 | 0.09 | 7.60 | 45 | 39 | 45 | 0.011 | |
| | MM-2 | 109 | 0.08 | 7.55 | 45.5 | 37 | 47 | 0.015 | |
| | BIF | 81 | 0.25 | 7.80 | 45.5 | 43 | 45 | | |
| | ERD-2 | 48 | 0.12 | 7.84 | 45 | 44 | 45 | | |
| | Raw | | 0.81 | 8.03 | 44 | 45 | 46 | 0.030 | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 8-5 | MM-1 | 78 | 0.12 | 7.40 | 44.5 | 34 | 45 | 0.033 | |
| | MM-2 | 109 | 0.07 | 7.50 | 44.5 | 35 | 39 | 0.009 | |
| | BIF | 82 | 0.15 | 7.80 | 44.5 | 48 | 43 | | |
| | ERD-2 | 48 | 0.36 | 8.10 | 44.5 | 42 | 44 | | |
| | Raw | | 0.56 | 7.50 | 43 | 46 | 46 | 0.013 | |
| 8-6 | MM-1 | 78 | 0.08 | 7.4 | 43 | 38 | 47 | 0.017 | |
| | MM-2 | 109 | 0.06 | 7.4 | 43.5 | 4] | 42 | 0.017 | |
| | BIF | 82 | 0.19 | 8.0 | 42.5 | 44 | 47 | 0.021 | |
| | ERD-2 | 48 | 0.09 | 8.0 | 43 | 44 | 46 | 0.40 | |
| | Raw | | 0.58 | 8.0 | 41.5 | 44 | 42 | 0.025 | |
| | ERD-2 | 48 | 0.08 | 7.95 | | 44 | 46 | | |
| | MM-1 | 78 | 0.11 | 7.40 | 42 | 37 | 42 | | |
| | MM-2 | 109 | 0.11 | 7.50 | 42.5 | 38 | 45 | | |
| | BIF | 82 | 0.20 | 7.90 | 42 | 44 | 44 | | |
| | ERD-2 | 49 | 0.11 | 8.00 | 42 | 43 | 44 | | |
| | Raw | | 0.65 | 8.03 | 42 | 45 | 44 | | |
| | MM-1 | 78 | 0.16 | 7.40 | 44 | 37 | 45 | 0.011 | |
| | MM-2 | 109 | 0.34 | 7.50 | 42.5 | 37 | 44 | 0.013 | |
| 8-7 | Raw | | 0.55 | 8.00 | 42 | 42 | 46 | 0.011 | |
| | MM-1 | 79 | 0.08 | 7.55 | 42 | 35 | 43 | 0.023 | |
| | MM-2 | 110 | 0.10 | 7.70 | 42 | 37 | 44 | 0.013 | |
| | BIF | 82 | 0.18 | 8.00 | 42.5 | 43 | 40 | | |
| | ERD-2 | 49 | 0.20 | 8.00 | 42.5 | 44 | 44 | | |
| | MM-1 | 79 | 0.07 | 7.48 | 43.5 | 33 | 45 | 0.021 | |
| | MM-2 | 110 | 0.06 | 7.40 | 44.5 | 36 | 44 | 0.030 | |
| | BIF | 82 | 0.15 | 7.85 | 44 | 42 | 41 | | |
| | ERD-2 | 49 | 0.10 | 7.61 | 43.5 | 40 | 45 | | |
| | Raw | | 0.55 | 8.00 | 43 | 42 | 41 | 0.023 | |
| | Raw | | 0.58 | 7.85 | 44 | 44 | 44 | | |
| | MM-1 | 79 | 0.09 | 7.45 | 45 | 37 | 45 | 0.028 | |
| | MM-2 | 110 | 0.12 | 7.50 | 45 | 37 | 46 | 0.019 | |
| | BIF | 83 | 0.21 | 7.98 | 45.5 | 44 | 44 | | |
| | ERD-2 | 49 | 0.09 | 7.90 | 45 | 43 | 45 | | |
| | Raw | | 0.93 | 7.65 | 42 | 43 | 43 | | |
| | MM-1 | 79 | 0.09 | 7.25 | 41.5 | 37 | 46 | | |
| | MM-2 | 110 | 0.35 | 7.30 | 41 | 38 | 47 | | |
| | BIF | 83 | 0.28 | 7.70 | 40.5 | 42 | 44 | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 8-7 | ERD-2 | 49 | 0.07 | 7.70 | 42 | 43 | 44 | | |
| 8-8 | MM-1 | 79 | 0.30 | 7.53 | 42.5 | 37 | 45 | 0.021 | |
| | MM-2 | 111 | 0.08 | 7.95 | 43 | 37 | 45 | 0.011 | |
| | BIF | 84 | 0.15 | 8.00 | 43 | 41 | 44 | | |
| | ERD-2 | 49 | 0.12 | 8.05 | 43.5 | 42 | 44 | | |
| | Raw | | 0.53 | 7.82 | 42 | 41 | 43 | 0.023 | |
| | ERD-2 | 49 | 0.10 | 7.70 | 43 | 42 | 44 | | |
| | MM-1 | 80 | 0.08 | 7.45 | 42 | 37 | 43 | 0.038 | |
| | MM-2 | 111 | 0.08 | 7.50 | 41.5 | 34 | 41 | 0.026 | |
| | BIF | 84 | 0.18 | 7.85 | 41 | 40 | 39 | | |
| | ERD-2 | 50 | 0.16 | 7.90 | 41.5 | 42 | 43 | | |
| | Raw | | 0.59 | 7.85 | 41 | 41 | 44 | | |
| | MM-1 | 80 | 0.17 | 7.40 | 54 | 38 | 44 | | |
| | MM-2 | 111 | 0.12 | 7.42 | 54 | 34 | 45 | | |
| | BIF | 86 | 0.38 | 7.65 | 54 | 42 | 44 | | |
| | ERD-2 | 50 | 0.26 | 7.92 | 55 | 42 | 42 | | |
| | Raw | | 1.40 | 7.80 | 53 | 41 | 42 | | |
| 8-9 | MM-1 | 80 | 0.27 | 7.45 | 57 | 37 | 45 | 0.001 | |
| | MM-2 | 112 | 0.35 | 7.60 | 57 | 38 | 45 | 0.013 | |
| | BIF | 86 | 0.32 | 7.95 | 57 | 42 | 43 | | |
| | ERD-2 | 50 | 0.25 | 8.00 | 57 | 43 | 45 | | |
| | Raw | | 1.50 | 8.00 | 55 | 41 | 45 | 0.011 | |
| | MM-1 | 81 | 0.16 | 7.60 | 58 | 38 | 43 | 0.009 | |
| | MM-2 | 112 | 0.19 | 7.65 | 58 | 41 | 43 | 0.007 | |
| | BIF | 86 | 0.29 | 7.86 | 58 | 41 | 45 | | |
| | ERD-2 | 50 | 0.19 | 7.90 | 58 | 42 | 44 | | |
| | Raw | | 1.15 | 7.95 | 57.5 | 37 | 41 | 0.005 | |
| | Raw | | 1.3 | 8.10 | 57 | 42 | 46 | 0.015 | |
| | BIF | 86 | 0.35 | 8.05 | 57 | 43 | 46 | | |
| | MM-1 | 81 | 0.10 | 7.55 | 57 | 36 | 43 | 0.017 | |
| | MM-2 | 112 | 0.14 | 7.60 | 58 | 39 | 44 | 0.015 | |
| | BIF | 87 | 0.20 | 8.00 | 57.5 | 42 | 49 | | |
| | ERD-2 | 50 | 0.21 | 7.80 | 57.5 | 43 | 50 | | |
| 8-10 | MM-1 | 81 | 0.12 | 7.38 | 58 | 37 | 44 | 0.162 | |
| | BIF | 87 | 0.23 | 7.90 | 58 | 43 | 45 | | |
| | Raw | | 1.00 | | 57 | | 45 | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 8-12 | MM-1 | 82 | 0.09 | 7.40 | 52 | 36 | 45 | 0.061 | |
| | MM-2 | 113 | 0.08 | 7.5 | 52 | 37 | 45 | 0.112 | |
| | BIF | 88 | 0.16 | 8.00 | 52 | 44 | 45 | | |
| | ERD-2 | 51 | 0.11 | 8.08 | | 44 | 45 | | |
| | Raw | | 0.62 | 8.02 | 51 | 44 | 45 | 0.420 | |
| | MM-1 | 82 | 0.05 | 7.42 | 51 | 35 | 45 | 0.050 | |
| | MM-2 | 113 | 0.05 | 7.50 | 51.5 | 36 | 43 | 0.012 | |
| | BIF | 88 | 0.21 | 8.02 | 50 | 44 | 45 | | |
| | ERD-2 | 51 | 0.08 | 8.10 | 51.5 | 41 | 43 | | |
| | Raw | | 0.58 | 8.05 | 52 | 39 | 43 | 0.421 | |
| 8-13 | Raw | | 0.66 | 7.50 | 50 | 45 | 46 | 0.026 | |
| | MM-1 | 82 | 0.07 | 7.40 | 51 | 34 | 46 | 0.017 | |
| | MM-2 | 113 | 0.09 | 7.30 | 51 | 40 | 47 | 0.017 | |
| | BIF | 88 | 0.21 | 7.60 | 51.5 | 40 | 47 | | |
| | ERD-2 | 51 | 0.09 | 7.60 | 51 | 43 | 47 | | |
| | Raw | | 0.59 | 7.99 | 49 | 43 | 46 | 0.022 | |
| | MM-1 | 82 | 0.16 | 7.31 | 50 | 37 | 43 | 0.045 | |
| | MM-2 | 114 | 0.11 | 7.42 | 50 | 38 | 46 | 0.022 | |
| | BIF | 88 | 0.15 | 7.98 | 50 | 43 | 44 | | |
| | ERD-2 | 54 | 0.16 | 7.99 | | 44 | 45 | | |
| | Raw | | 0.68 | 8.00 | 53 | 43 | 47 | 0.053 | |
| | MM-1 | 83 | 0.06 | 7.60 | 51 | 36 | 45 | 0.045 | |
| | MM-2 | 114 | 0.06 | 7.65 | 52.5 | 35 | 44 | 0.095 | |
| | BIF | 88 | 0.14 | 7.95 | 51.5 | 42 | 44 | | |
| | ERD-2 | 54 | 0.15 | 8.05 | 52 | 43 | 45 | | |
| 8-14 | Raw | | 0.59 | 7.90 | 54 | 41 | 44 | 0.011 | |
| | MM-1 | 83 | 0.07 | 7.45 | | 38 | 45 | 0.021 | |
| | MM-2 | 114 | 0.05 | 7.40 | 55 | 36 | 45 | 0.025 | |
| | BIF | 88 | 0.15 | 7.80 | 55.5 | 43 | 53 | | |
| | ERD-2 | 54 | 0.16 | 7.90 | 55 | 40 | 48 | | |
| | Raw | | 0.76 | 8.10 | 56 | 43 | 46 | 0.023 | |
| | MM-1 | 83 | 0.06 | 7.45 | 56 | 33 | 47 | 0.021 | |
| | MM-2 | 114 | 0.04 | 7.40 | 58 | 30 | 43 | 0.017 | |
| | BIF | 88 | 0.10 | 7 80 | 57 | 42 | 40 | | |
| | ERD-2 | 55 | 0.09 | 8.00 | 58 | 41 | 50 | | |
| | MM-1 | 83 | 0.32 | 7.40 | 56 | 35 | 50 | 0.031 | |
| | MM-2 | 115 | 0.05 | 7.35 | 58 | 35 | 47 | 0.017 | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, PTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 8-14 | BIF | 89 | 0.08 | 7.90 | 56 | 41 | 43 | | |
| | ERD-2 | 55 | 0.08 | 7.70 | 56.5 | 42 | 48 | | |
| | Raw | | 0.62 | 7.90 | 57 | 38 | 47 | 0.015 | |
| 8-15 | Raw | | 0.74 | 7.75 | 56 | 35 | 50 | 0.042 | |
| | MM-1 | 84 | 0.06 | 7.50 | 57 | 35 | 52 | 0.023 | |
| | MM-2 | 114 | 0.06 | 7.50 | 57.5 | 34 | 50 | 0.013 | |
| | BIF | 89 | 0.17 | 8.00 | 57.5 | 42 | 49 | | |
| | ERD-2 | 55 | 0.13 | 7.90 | 58 | 45 | 52 | | |
| | Raw | | 0.54 | 8.00 | 57 | 43 | 45 | 0.030 | |
| | MM-1 | 84 | 0.06 | 7.40 | 58 | 34 | 46 | 0.039 | |
| | MM-2 | 114 | 0.04 | 7.40 | 58 | 35 | 48 | 0.013 | |
| | BIF | 89 | 0.13 | 8.00 | 58 | 44 | 38 | | |
| | ERD-2 | 56 | 0.04 | 8.00 | 58 | 47 | 46 | | |
| | MM-1 | 84 | 0.05 | 7.10 | 55 | 32$ | 46 | 0.015 | |
| | MM-2 | 114 | 0.04 | 7.30 | 57 | 32 | 51 | 0.011 | |
| | BIF | 89 | 0.19 | 7.90 | 56 | 40 | 50 | | |
| | ERD-2 | 56 | 0.12 | 7.50 | 56 | 37 | 47 | | |
| | Raw | | 0.51 | 7.40 | 56.5 | 38 | 57 | 0.007 | |
| 8-16 | Raw | | 0.66 | 7.95 | 56 | 37 | 48 | 0.013 | |
| | MM-1 | 84 | 0.16 | 7.40 | 57.5 | 36 | 53 | 0.017 | |
| | MM-2 | 115 | 0.09 | 7.40 | 58 | 36 | 48 | 0.021 | |
| | BIF | 89 | 0.20 | 7.80 | 58 | 41 | 52 | | |
| | ERD-2 | 56 | 0.15 | 8.00 | 56.5 | 36 | 50 | | |
| | Raw | | 0.62 | 8.00 | 56.5 | 43 | 48 | 0.015 | |
| | MM-1 | 85 | 0.06 | 7.60 | 56 | 46 | 36 | 0.017 | |
| | MM-2 | 115 | 0.07 | 7.40 | 56 | 38 | 47 | 0.11 | |
| | BIF | 90 | 0.17 | 7.70 | 55.5 | 41 | 40 | | |
| | ERD-2 | 57 | 0.07 | 7.80 | 56 | 36 | 47 | | |
| | Raw | | 0.66 | 8.00 | 56.5 | 38 | 43 | 0.11 | |
| | MM-1 | 85 | 0.06 | 7.35 | | 40 | 52 | 0.028 | |
| | MM-2 | 115 | 0.05 | 7.30 | | 36 | 48 | 0.035 | |
| | BIF | 91 | 0.10 | 7.80 | | 50 | 51 | | |
| | ERD-2 | 57 | 0.14 | 7.70 | | 43 | 51 | | |
| | Raw | | 1.10 | 7.90 | | 44 | 45 | 0.032 | |
| 8-17 | Raw | | 0.60 | 7.60 | 54.5 | 42 | 46 | 0.017 | |
| | MM-1 | 80 | 0.08 | 7.20 | 56 | 35 | 48 | 0.030 | |
| | MM-2 | 115 | 0.67 | 7.20 | 56 | 38 | 48 | 0.007 | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 8-17 | BIF | 91 | 0.23 | 7.50 | 56.5 | 45 | 47 | | |
| | ERD-2 | 57 | 0.13 | 7.40 | 56 | 43 | 50 | | |
| 8-19 | Raw | | 0.51 | 7.90 | 50 | 42 | 49 | 0.009 | |
| | MM-2 | 116 | 0.05 | 7.45 | 51.5 | 39 | 45 | 0.011 | |
| | BIF | 92 | 0.19 | 7.90 | 51 | 41 | 44 | | |
| | ERD-2 | 58 | 0.08 | 7.90 | 51 | 41 | 50 | | |
| | Raw | | 0.52 | 8.00 | 51 | 43 | 45 | 0.021 | |
| | MM-2 | 116 | 0.06 | 7.40 | 50.5 | 35 | 48 | 0.021 | |
| | BIF | 92 | 0.06 | 7.90 | 49.5 | 48 | 50 | | |
| | ERD-2 | 58 | 0.12 | 7.90 | 50.5 | 46 | 48 | | |
| | Raw | | 0.69 | 7.90 | 52 | 42 | 43 | 0.021 | |
| | MM-2 | 117 | 0.29 | 7.60 | 53 | 39 | 50 | 0.023 | |
| | BIF | 92 | 0.15 | 7.90 | 53 | 45 | 53 | | |
| | ERD-2 | 58 | 0.12 | 8.00 | 52.5 | 42 | 47 | | |
| 8-20 | Raw | | 0.74 | 8.00 | 55.5 | 42 | 46 | 0.015 | |
| | MM-2 | 117 | 0.05 | 7.50 | 57.5 | 35 | 45 | 0.021 | |
| | BIF | 93 | 0.26 | 8.00 | 58 | 42 | 49 | | |
| | ERD-2 | 59 | 0.06 | 8.00 | 57.5 | 39 | 49 | | |
| | Raw | | 0.65 | 8.00 | 55.5 | 37 | 45 | 0.021 | |
| | MM-2 | 117 | 0.23 | 7.45 | 55 | 35 | 48 | 0.017 | |
| | BIF | 93 | 0.16 | 7.90 | 54.5 | 47 | 46 | | |
| | ERD-2 | 59 | 0.10 | 7.90 | 55 | 45 | 46 | | |
| | MM-2 | 118 | 0.07 | 7.30 | 54 | 40 | 48 | 0.011 | |
| | Raw | | 0.83 | 7.95 | 56 | 48 | 48 | 0.051 | |
| | MM-2 | 118 | 0.15 | 7.90 | 58 | 42 | 48 | 0.021 | |
| | BIF | 93 | 0.23 | 7.30 | 58.5 | 35 | 45 | | |
| | ERD-2 | 59 | 0.14 | 7.80 | 58 | 43 | 49 | | |
| 8-21 | Raw | | 0.83 | 7.90 | 54 | 35] | 44 | 0.035 | |
| | MM-2 | 118 | 0.11 | 7.35 | 55 | 38 | 42 | 0.019 | |
| | BIF | 94 | 0.16 | 7.85 | 55 | 41 | 45 | | |
| | ERD-2 | 60 | 0.12 | 7.90 | 55 | 40 | 40 | | |
| | MM-2 | 118 | 0.20 | 7.20 | 53.5 | 31 | 42 | 0.013 | |
| | Raw | | 0.55 | 7.90 | 57.5 | 40 | 44 | 0.011 | |
| | MM-1 | 86 | 0.08 | 7.40 | 57.5 | 34 | 48 | 0.043 | |
| | BIF | 94 | 0.16 | 7.80 | 56.5 | 41 | 45 | | |
| | ERD-2 | 60 | 0.10 | 7.90 | 57.5 | 45 | 45 | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb, FTU | pH | Temp, °F | Alk, mg/l | Hardness mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 8-21 | Raw | | 0.68 | 7.90 | 56.5 | 43 | 48 | 0.011 | |
| | MM-1 | 86 | 0.09 | 7.35 | 58 | 35 | 41 | 0.007 | |
| | BIF | 94 | 0.15 | 7.85 | 58 | 45 | 46 | | |
| | ERD-2 | 60 | 0.14 | 7.90 | 58 | 48 | 44 | | |
| 8-22 | MM-1 | 86 | 0.05 | 7.30 | 55 | 35 | 50 | 0.013 | |
| | BIF | 95 | 0.35 | 7.60 | 55 | 35 | 51 | | |
| | ERD-2 | 62 | 0.08 | 7.70 | 55 | 43 | 50 | | |
| | Raw | | 0.65 | 7.70 | 54 | 45 | 45 | 0.003 | |
| | BIF | 95 | 0.53 | 7.80 | 52 | 39 | 45 | | |
| | MM-1 | 86 | 0.06 | 7.10 | | 34 | 47 | 0.049 | |
| | MM-2 | 119 | 0.08 | 7.10 | 52 | 35 | 45 | 0.047 | |
| | BIF | 96 | 0.37 | 7.30 | 52 | 45 | 43 | | |
| | ERD-2 | 62 | 0.09 | 7.30 | 54 | 50 | 46 | | |
| | Raw | | 0.60 | 7.70 | 53 | 47 | 44 | 0.055 | |
| | Raw | | 0.71 | 7.70 | 48.5 | 42 | 46 | 0.038 | |
| | MM-2 | 119 | 0.09 | 7.10 | 49 | 40 | 48 | 0.033 | |
| | BIF | 97 | 0.24 | 7.50 | 49 | 46 | 48 | | |
| | ERD-2 | 62 | 0.10 | 7.40 | 50 | 43 | 47 | | |
| 8-23 | Raw | | 0.49 | 7.50 | 49 | 40 | 47 | 0.57 | |
| | MM-2 | 119 | 0.07 | 7.40 | 49.5 | 34 | 48 | 0.023 | |
| | BIF | 97 | 0.24 | 6.90 | 49.5 | 43 | 47 | | |
| | ERD-2 | 63 | 0.13 | 7.40 | 49.5 | 43 | 40 | | |
| | BIF | 97 | 0.25 | 7.60 | 52 | 42 | 48 | | |
| | MM-2 | 119 | 0.06 | 7.10 | 50.5 | 37 | 48 | 0.025 | |
| | ERD-2 | 63 | 0.06 | 7.40 | 52 | 46 | 45 | | |
| | Raw | | 0.55 | 7.50 | 51.5 | 49 | 49 | 0.039 | |
| | BIF | 99 | 0.25 | 7.60 | | 45 | 51 | | |
| | Raw | | 0.51 | 7.40 | 52 | 48 | 46 | 0.017 | |
| | MM-2 | 120 | 0.11 | 7.20 | 52.5 | 49 | 50 | 0.019 | |
| | BIF | 100 | 0.67 | 7.30 | 53 | 49 | 47 | | |
| | ERD-2 | 63 | 0.15 | 7.50 | 52 | 43 | 48 | | |
| 8-26 | Raw | | 0.46 | 7.90 | 51 | 42 | 48 | 0.009 | |
| | ERD-2 | 64 | 0.06 | 7.80 | 52 | 42 | 50 | | |
| | Raw | | 0.43 | 7.70 | 50 | 47 | 47 | 0.011 | |
| | BIF | 101 | 0.09 | 7.70 | 52 | 42 | 53 | 0.035 | |
| | ERD-2 | 64 | 0.07 | 7.80 | 51 | 42 | 35 | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb., FTU | pH | Temp., °F | Alk., mg/l | Hardness, mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 8-27 | Raw | | 0.46 | 7.40 | 46.5 | 40 | 46 | 0.042 | |
| | BIF | 101 | 0.13 | 7.50 | 45 | 45 | 49 | | |
| | ERD-2 | 64 | 0.10 | 7.50 | 46 | 40 | 53 | | |
| | ERD-2 | 65 | 0.06 | 7.50 | 46 | 41 | 57 | | |
| | Raw | | 0.49 | 7.80 | 41 | 43 | 45 | 0.057 | |
| | MM-2 | 121 | 0.07 | 7.40 | | 42 | 47 | 0.019 | |
| | BIF | 102 | 0.09 | 7.70 | 41 | 47 | 53 | | |
| | Raw | | 0.48 | 7.90 | 42 | 43 | 44 | 0.007 | |
| | MM-2 | 121 | 0.06 | 7.50 | 43 | 37 | 45 | 0.015 | |
| | BIF | 102 | 0.10 | 7.85 | 43 | 46 | 52 | | |
| | ERD-2 | 66 | 0.08 | 7.70 | 43 | 41 | 49 | | |
| 8-28 | Raw | | 0.48 | 7.80 | 42.5 | 50 | 45 | 0.011 | |
| | MM-2 | 121 | 0.10 | 7.40 | 42 | 42 | 50 | 0.023 | |
| | BIF | 102 | 0.09 | 7.75 | 42 | 47 | 52 | | |
| | ERD-2 | 66 | 0.07 | 7.70 | 42 | 43 | 50 | | |
| | Raw | | 0.42 | 7.80 | 43 | 45 | 46 | 0.062 | |
| | MM-2 | 122 | 0.07 | 7.20 | 43 | 41 | 53 | 0.047 | |
| | BIF | 103 | 0.18 | 7.70 | 43 | 44 | 46 | | |
| | ERD-2 | 66 | 0.06 | 7.60 | 43 | 50 | 57 | | |
| | Raw | | 0.43 | 7.70 | 42 | 46 | 50 | 0.039 | |
| | MM-2 | 122 | 0.05 | 7.40 | 42 | 43 | 50 | 0.015 | |
| | BIF | 103 | 0.11 | 7.70 | 41 | 45 | 50 | | |
| | ERD-2 | 67 | 0.06 | 7.80 | 42 | 45 | 53 | | |
| 8-29 | Raw | | 0.47 | 7.80 | 43 | 45 | 45 | 0.038 | |
| | MM-2 | 122 | 0.07 | 7.50 | 42 | 42 | 53 | 0.038 | |
| | BIF | 103 | 0.11 | 7.80 | 41 | 42 | 49 | | |
| | ERD-2 | 67 | 0.04 | 7.80 | 42.5 | 44 | 50 | | |
| | Raw | | 0.40 | 7.70 | 40 | 45 | 54 | 0.021 | |
| | MM-2 | 123 | 0.04 | 7.30 | 40 | 38 | 58 | 0.011 | |
| | BIF | 104 | 0.11 | 7.50 | 40 | 45 | 46 | | |
| | ERD-2 | 67 | 0.05 | 7.40 | 42 | 46 | 57 | | |
| | Raw | | 0.55 | 7.70 | 40 | 42 | 51 | 0.011 | |
| | MM-2 | 123 | 0.06 | 7.20 | 41 | 40 | 50 | 0.013 | |
| | BIF | 104 | 0.10 | 7.60 | 41 | 40 | 52 | | |
| | ERD-2 | 68 | 0.07 | 7.50 | 41 | 42 | 51 | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb., FTU | pH | Temp., °F | Alk., mg/l | Hardness, mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 8-30 | BIF | 104 | 0.06 | 7.50 | 41.5 | 46 | 52 | | |
| | Raw | | 0.41 | 7.50 | 41.5 | 41 | 58 | | |
| | MM-2 | 123 | 0.06 | 7.20 | 41 | 40 | 52 | 0.011 | |
| | BIF | 104 | 0.06 | 7.50 | 40.5 | 46 | 52 | | |
| | ERD-2 | 68 | 0.04 | 7.50 | 42 | 45 | 55 | 0.013 | |
| | Raw | | 0.41 | 7.80 | 40 | 40 | 46 | 0.015 | |
| | MM-2 | 124 | 0.04 | 7.30 | 40 | 35 | 53 | 0.021 | |
| | BIF | 105 | 0.21 | 7.80 | 40 | 43 | 55 | | |
| | ERD-2 | 68 | 0.05 | 7.75 | 41 | 47 | 55 | | |
| | MM-2 | 124 | 0.05 | 7.30 | 40 | 39 | 55 | 0.026 | |
| | BIF | 106 | 0.16 | 7.60 | 40 | 42 | 50 | | |
| | ERD-2 | 68 | 0.05 | 7.70 | 40 | 44 | 52 | | |
| | Raw | | 0.54 | 7.70 | 39 | 45 | 50 | 0.039 | |
| 8-31 | Raw | | 0.93 | 7.70 | 40 | 39 | 50 | 0.023 | |
| | MM-2 | 124 | 0.28 | 7.20 | 39 | 37 | 60 | 0.026 | |
| | BIF | 106 | 0.23 | 7.50 | 39 | 38 | 53 | | |
| | ERD-2 | 68 | 0.06 | 7.50 | 40 | 36 | 52 | | |
| 9-3 | Raw | | 0.71 | 7.75 | 39 | 44 | 46 | 0.025 | |
| | MM-2 | 125 | 0.06 | 7.40 | 40 | 40 | 58 | 0.013 | |
| | BIF | 107 | 0.17 | 7.70 | 40 | 41 | 50 | | |
| | ERD-2 | 69 | 0.07 | 7.75 | 40 | 40 | 50 | | |
| | Raw | | 0.59 | 7.80 | 41 | 44 | 46 | 0.011 | |
| | MM-2 | 125 | 0.07 | 7.50 | 40 | 38 | 50 | 0.011 | |
| | BIF | 107 | 0.15 | 7.90 | 41 | 38 | 55 | | |
| | ERD-2 | 69 | 0.06 | 7.80 | 41.5 | 41 | 48 | | |
| 9-4 | Raw | | 0.63 | 7.90 | 40 | 44 | 51 | 0.011 | |
| | MM-2 | 126 | 0.04 | 7.30 | 40 | 38 | 53 | 0.011 | |
| | BIF | 108 | 0.16 | 7.80 | 40 | 42 | 51 | | |
| | ERD-2 | 69 | 0.04 | 7.70 | 41 | 44 | 50 | | |
| | Raw | | 0.66 | 7.80 | 40 | 43 | 46 | 0.028 | |
| | MM-2 | 126 | 0.05 | 7.40 | 41 | 39 | 48 | 0.015 | |
| | BIF | 108 | 0.18 | 7.80 | 41 | 42 | 47 | | |
| | ERD-2 | 70 | 0.05 | 7.70 | 41 | 41 | 47 | | |
| | BIF | 108 | 0.27 | 7.80 | 40 | 39 | 52 | | |
| | Raw | | 0.68 | 7.80 | 41.5 | 40 | 46 | 0.011 | |
| | MM-2 | 126 | 0.65 | 7.40 | 41 | 35 | 50 | 0.025 | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb., FTU | pH | Temp., °F | Alk., mg/l | Hardness, mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 9-4 | BIF | 109 | 0.25 | 7.80 | 40 | 45 | 51 | | |
| | ERD-2 | 70 | 0.05 | 7.80 | 41.5 | 42 | 56 | | |
| 9-5 | Raw | | 0.64 | 7.90 | 40 | 43 | 45 | 0.026 | |
| | BIF | 109 | 0.45 | 7.85 | 40 | 39 | 52 | | |
| | ERD-2 | 70 | 0.05 | 7.80 | 41 | 40 | 53 | | |
| | Raw | | 0.69 | 7.85 | 41 | 43 | 44 | 0.025 | |
| | MM-2 | 127 | 0.06 | 7.40 | 42 | 35 | 45 | 0.011 | |
| | BIF | 110 | 0.16 | 7.80 | 42 | 41 | 46 | | |
| | ERD-2 | 71 | 0.05 | 7.75 | 42 | 42 | 52 | | |
| | Raw | | 0.65 | 7.80 | 42.5 | 41 | 45 | | |
| | MM-2 | 127 | 0.07 | 7.40 | 41 | 38 | 58 | 0.007 | |
| | BIF | 110 | 0.17 | 7.80 | 41 | 40 | 48 | | |
| | ERD-2 | 71 | 0.05 | 7.80 | 42 | 43 | 49 | | |
| 9-6 | Raw | | 0.62 | 7.75 | 40 | 44 | 46 | 0.009 | |
| | MM-2 | 128 | 0.06 | 7.40 | 40.5 | 40 | 55 | 0.015 | |
| | BIF | 110 | 0.11 | 7.20 | 40 | 43 | 52 | | |
| | ERD-2 | 71 | 0.05 | 7.80 | 42 | 40 | 55 | | |
| | Raw | | 0.53 | 7.75 | 42 | 43 | 46 | 0.009 | |
| | MM-2 | 128 | 0.04 | 7.70 | 43 | 38 | 56 | 0.005 | |
| | BIF | 111 | 0.11 | 7.60 | 43 | 42 | 55 | | |
| | ERD-2 | 72 | 0.06 | 7.70 | 43 | 40 | 55 | | |
| | Raw | | 0.44 | 7.90 | 48 | 43 | 44 | 0.007 | |
| | MM-2 | 128 | 0.10 | 7.40 | 46 | 33 | 46 | 0.013 | |
| | BIF | 111 | 0.06 | 7.60 | 46 | 44 | 41 | | |
| | ERD-2 | 72 | 0.05 | 7.60 | 46 | 44 | 50 | | |
| 9-7 | Raw | | 0.39 | 7.70 | 46 | 35 | 44 | 0.007 | |
| | BIF | 112 | 0.05 | 7.40 | 46 | 35 | 50 | | |
| | ERD-2 | 72 | 0.04 | 7.50 | 47 | 40 | 54 | | |
| 9-9 | Raw | | 0.46 | 7.40 | 49 | 38 | 44 | | |
| | MM-2 | 129 | 0.10 | 7.20 | 46.5 | 35 | 51 | 0.011 | |
| | BIF | 113 | 0.07 | 7.40 | 46.5 | 35 | 49 | | |
| | ERD-2 | 73 | 0.06 | 7.40 | 47.5 | 40 | 49 | | |
| | Raw | | 0.50 | 7.70 | 48 | 43 | 45 | 0.011 | |
| | MM-2 | 129 | 0.06 | 7.10 | 48 | 36 | 46 | 0.028 | |
| | BIF | 113 | 0.07 | 7.40 | 48 | 45 | 45 | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb., FTU | pH | Temp., °F | Alk., mg/l | Hardness, mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 9-9 | ERD-2 | 73 | 0.50 | 7.40 | 49 | 43 | 44 | | |
| 9-10 | Raw | | 0.50 | 7.70 | 48 | 45 | 45 | 0.015 | |
| | MM-2 | 130 | 0.06 | 7.30 | | 38 | 50 | 0.011 | |
| | BIF | 113 | 0.08 | 7.60 | 48.5 | 40 | 42 | | |
| | ERD-2 | 73 | 0.07 | 7.50 | 49 | 46 | 48 | | |
| | BIF | 13 | 0.10 | 7.30 | 48 | 40 | 48 | | |
| | MM-2 | 130 | 0.08 | 7.00 | 48 | 35 | 43 | 0.023 | |
| | BIF | 114 | 0.07 | 7.80 | 47 | 42 | 45 | | |
| | ERD-2 | 74 | 0.05 | 7.90 | 48 | 43 | 47 | | |
| | Raw | | 0.50 | 7.90 | 49 | 43 | 44 | 0.011 | |
| | MM-2 | 131 | 0.06 | 7.40 | 47 | 36 | 45 | 0.011 | |
| | Raw | | 0.76 | 7.80 | 47 | 43 | 45 | 0.011 | |
| | MM-2 | 131 | 0.07 | 7.40 | 47 | 35 | 48 | 0.017 | |
| | BIF | 114 | 0.07 | 7.70 | 47 | 40 | 52 | | |
| | ERD-2 | 74 | 0.06 | 7.80 | 47.5 | 43 | 45 | | |
| 9-11 | Raw | | 0.74 | 7.70 | 48 | 43 | 44 | 0.015 | |
| | MM-2 | 132 | 0.06 | 7.80 | 49 | 35 | 46 | 0.011 | |
| | BIF | 114 | 0.07 | 7.80 | 49 | 40 | 44 | | |
| | ERD-2 | 75 | 0.07 | 6.90 | 49 | 41 | 45 | | |
| | BIF | 114 | 0.10 | 6.70 | 47 | 30 | 46 | | |
| | MM-2 | 132 | 0.20 | 7.00 | 47 | 25 | 43 | | |
| | BIF | 115 | 0.15 | 7.60 | 45 | 40 | 45 | | |
| | ERD-2 | 75 | 0.05 | 7.60 | 46 | 37 | 42 | 0.015 | |
| | Raw | | 0.45 | 7.80 | 47 | 43 | 44 | 0.013 | |
| | MM-2 | 133 | 0.07 | 7.10 | 45 | 32 | 41 | | |
| | Raw | | 0.55 | 7.80 | 44 | 43 | 44 | 0.011 | |
| | MM-2 | 134 | 0.04 | 7.20 | 44 | 33 | 47 | 0.011 | |
| | BIF | 115 | 0.07 | 7.40 | 44 | 43 | 41 | | |
| | ERD-2 | 75 | 0.05 | 7.60 | 45 | 40 | 50 | | |
| 9-12 | Raw | | 0.40 | 7.70 | 45 | 42 | 46 | 0.007 | |
| | MM-2 | 134 | 0.04 | 7.20 | 46 | 39 | 55 | 0.015 | |
| | BIF | 115 | 0.06 | 7.60 | 46 | 40 | 48 | | |
| | ERD-2 | 76 | 0.05 | 7.60 | 46 | 45 | 55 | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb., FTU | pH | Temp., °F | Alk., mg/l | Hardness, mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 9-12 | MM-2 | 134 | 9.0 | 7.30 | 44 | 35 | 46 | 0.075 | |
| | BIF | 116 | 0.07 | 7.90 | 44 | 45 | 48 | | |
| | ERD-2 | 76 | 0.06 | 7.80 | 44 | 40 | 48 | | |
| | Raw | | 0.35 | 7.90 | 45 | 44 | 44 | 0.013 | |
| | Raw | | 0.41 | 8.00 | 44 | 43 | 49 | 0.011 | |
| | MM-2 | 135 | 0.04 | 7.50 | 44 | 35 | 52 | 0.005 | |
| | BIF | 116 | 0.05 | 7.90 | 44 | 40 | 56 | | |
| | ERD-2 | 76 | 0.04 | 7.90 | 44.5 | 42 | 45 | | |
| 9-13 | MM-2 | 136 | 0.04 | 6.90 | 46 | 35 | 45 | 0.067 | |
| | BIF | 116 | 0.05 | 7.30 | 46 | 40 | 56 | | |
| | Raw | | 0.47 | 7.30 | 45 | 38 | 44 | 0.011 | |
| | MM-2 | 136 | 0.55 | 7.20 | 46 | 27 | 55 | 0.049 | |
| | BIF | 116 | 0.05 | 7.40 | 44 | 45 | 56 | | |
| | Raw | | 0.40 | 7.90 | 45 | 38 | 44 | 0.011 | |
| | MM-2 | 130 | 0.05 | 7.50 | 44 | 34 | 45 | 0.011 | |
| | BIF | 117 | 0.08 | 7.90 | 44 | 40 | 50 | | |
| | ERD-2 | 78 | 0.08 | 8.00 | 44 | 45 | 45 | | |
| | Raw | | 0.49 | 8.00 | 42 | 43 | 44 | 0.005 | |
| | BIF | 117 | 0.05 | 7.40 | 42 | 42 | 41 | | |
| | ERD-2 | 78 | 0.03 | 8.00 | 43 | 43 | 50 | | |
| 9-14 | Raw | | 0.45 | 7.90 | 45 | 45 | 44 | 0.012 | |
| | BIF | 117 | 0.04 | 7.40 | 46 | 40 | 45 | | |
| 9-16 | Raw | | 0.37 | 7.70 | 40 | 43 | 45 | 0.009 | |
| | MM-2 | 138 | 0.04 | 7.40 | 40 | 37 | 43 | 0.028 | |
| | BIF | 118 | 0.08 | 7.20 | 40 | 38 | 46 | | |
| | ERD-2 | 79 | 0.04 | 7.50 | 40 | 37 | 45 | | |
| | MM-2 | 138 | 0.04 | 7.30 | 43 | 38 | 47 | 0.015 | |
| | BIF | 118 | 0.08 | 7.10 | 43 | 33 | 50 | | |
| | ERD-2 | 79 | 0.05 | 7.40 | 43 | 35 | 43 | | |
| | Raw | | 0.38 | 7.70 | 42 | 43 | 44 | 0.011 | |
| 9-17 | Raw | | 0.46 | 7.70 | 41 | 44 | 45 | 0.011 | |
| | MM-2 | 138 | 0.05 | 7.30 | 40 | 32 | 48 | 0.021 | |
| | BIF | 118 | 0.07 | 7.70 | 39.5 | 42 | 50 | | |
| | ERD-2 | 79 | 0.06 | 7.70 | 40 | 55 | 50 | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb., FTU | pH | Temp., °F | Alk., mg/l | Hardness, mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 9-17 | Raw | | 0.42 | 8.00 | 42 | 45 | 45 | 0.011 | |
| | MM-2 | 139 | 0.06 | 7.50 | 42 | 37 | 44 | 0.013 | |
| | BIF | 119 | 0.06 | 8.00 | 42 | 42 | 47 | | |
| | ERD-2 | 80 | 0.05 | 7.90 | 43 | 40 | 46 | | |
| | MM-2 | 139 | 0.08 | 7.50 | 42 | 42 | 50 | 0.011 | |
| | BIF | 119 | 0.10 | 7.90 | 42 | 50 | 47 | | |
| | ERD-2 | 80 | 0.08 | 7.90 | 42 | 40 | 53 | | |
| | Raw | | 0.53 | 7.90 | 41 | 43 | 46 | 0.021 | |
| 9-18 | MM-2 | 139 | 0.06 | 7.50 | 43 | 38 | 51 | 0.011 | |
| | BIF | 119 | 0.07 | 8.00 | 42 | 40 | 52 | | |
| | ERD-2 | 80 | 0.05 | 7.90 | 44 | 40 | 55 | | |
| | Raw | | 0.48 | 7.90 | 44 | 43 | 44 | 0.021 | |
| | ERD-2 | 81 | 0.06 | 7.75 | 40 | 46 | 43 | | |
| | Raw | | 0.57 | 7.90 | 39 | 43 | 44 | 0.011 | |
| | MM-1 | 87 | 0.26 | 7.80 | 40 | 42 | 48 | 0.015 | |
| | MM-1 | 87 | 0.14 | 7.60 | 41 | 42 | 47 | 0.011 | |
| | ERD-2 | 81 | 0.06 | 7.70 | 41 | 38 | 50 | | |
| | Raw | | 0.51 | 7.90 | 40 | 43 | 44 | 0.007 | |
| 9-19 | MM-1 | 87 | 0.10 | 7.70 | 41 | 42 | 51 | 0.021 | |
| | ERD-2 | 81 | 0.05 | 7.70 | 41.5 | 45 | 52 | | |
| | Raw | | 0.51 | 7.90 | 41 | 43 | 45 | 0.005 | |
| | MM-2 | 140 | 0.06 | 7.40 | 42 | 38 | 50 | 0.019 | |
| | BIF | 120 | 0.11 | 7.60 | 42 | 39 | 48 | | |
| | ERD-2 | 82 | 0.06 | 7.60 | 42 | 38 | 43 | | |
| | Raw | | 0.52 | 7.70 | 41 | 43 | 44 | 0.021 | |
| | Raw | | 0.49 | 7.70 | 39 | 43 | 44 | 0.021 | |
| | MM-2 | 140 | 0.05 | 7.20 | 40 | 37 | 45 | 0.038 | |
| | BIF | 120 | 0.58 | 7.40 | 39 | 42 | 43 | | |
| | ERD-2 | 83 | 0.05 | 7.40 | 40 | 45 | 50 | | |
| 9-20 | Raw | | 0.45 | 7.31 | 40 | 43 | 45 | 0.054 | |
| | MM-2 | 140 | 0.05 | 7.20 | 41 | 40 | 44 | 0.049 | |
| | BIF | 120 | 0.07 | 7.51 | 48 | 48 | | | |

APPENDIX A-3 (CONTINUED)

| Date | Unit | Run | Turb., FTU | pH | Temp., °F | Alk., mg/l | Hardness, mg/l | Aluminum, mg/l | Iron, mg/l |
|---|---|---|---|---|---|---|---|---|---|
| 9-20 | Raw | | 0.42 | 7.70 | 40 | 43 | 44 | 0.017 | |
| | MM-2 | 140 | 0.05 | 7.30 | 41 | 36 | 48 | 0.011 | |
| | BIF | 121 | 0.05 | 7.70 | 40 | 40 | 48 | | |
| | ERD-2 | 85 | 0.05 | 7.70 | 41 | 42 | 49 | | |
| | MM-2 | 140 | 0.06 | 7.40 | 40.5 | 36 | 48 | 0.011 | |
| | ERD-2 | 85 | 0.05 | 7.80 | 41.5 | 42 | 48 | | |
| | Raw | | 0.43 | 7.75 | 40 | 43 | 45 | 0.021 | |
| | BIF | 122 | 0.09 | 7.60 | 40 | 43 | 55 | | |
| 9-21 | Raw | | 0.48 | 7.80 | 41 | 44 | 44 | 0.011 | |
| | BIF | 122 | 0.07 | 7.60 | 42 | 46 | 48 | | |
| | ERD-2 | 86 | 0.06 | 7.60 | 42 | 40 | 55 | | |

a From 6-10 to 6-15, pH was run on Corning pH meter. Apparently this unit reads lower than Beckman pH meter.

b Beckman pH meter would not come to rest at any value, would not standardize. Corning pH meter was used.

c Raw sample bottle contaminated.

APPENDIX A-4 DISSOLVED OXYGEN DATA, RAW AND FILTERED WATER, DULUTH LAKEWOOD PUMPING STATION - 1974.

| Date | Unit | Time | Run | DO, mg/l | Water temperature, °F | DO saturation value, mg/l |
|---|---|---|---|---|---|---|
| 2-25 | Raw | 0815 | - | 14.2 | 33 | 14.4 |
| 3-4 | Raw | 0900 | - | 14.2 | 33 | 14.4 |
| 3-11 | Raw | 0830 | - | 14.2 | 33 | 14.4 |
| 3-26 | Raw | 0900 | - | 14.4 | 33 | 14.4 |
| 4-2 | Raw | 0830 | - | 14.6 | 33 | 14.4 |
| 4-8 | Raw | 0830 | - | 14.5 | 33 | 14.4 |
| 4-15 | Raw | 0830 | - | 14.2 | 33 | 14.4 |
| 4-18 | Raw | 0820 | - | 14.1 | 33 | 14.4 |
| 4-22 | Raw | 0815 | - | 14.5 | 33 | 14.4 |
| 4-29 | Raw | 0840 | - | 14.4 | 33 | 14.4 |
| 5-6 | Raw | 0820 | - | 14.5 | 33.5 | 14.3 |
| 5-13 | Raw | 0810 | - | 14.5 | 34 | 14.2 |
| 5-20 | Raw | 0900 | - | 13.9 | 35 | 14.0 |
| 5-28 | Raw | 0830 | - | 13.8 | 35 | 14.0 |
| 6-3 | Raw | 0815 | - | 14.0 | 37 | 13.6 |
| 6-16 | Raw | 0815 | - | 12.0 | 37 | 13.6 |
| 6-17 | Raw | 0845 | - | 14.8 | 37 | 13.6 |
| 6-24 | Raw | 0815 | - | 13.6 | 38 | 13.4 |
| 7-1 | Raw | 0830 | - | 13.6 | 39 | 13.2 |
| 7-8 | Raw | 0900 | - | 13.6 | 39.5 | 13.1 |
| 7-12 | Raw | 1130 | - | 13.6 | 43.5 | 12.3 |
| 7-12 | BIF | 1240 | 58 | 11.3 | 43.5 | 12.3 |
| 7-12 | ERD-2 | 1242 | 36 | 12.3 | 45.0 | 12.1 |
| 7-12 | MM-1 | 1245 | 62 | 12.6 | 45.0 | 12.1 |
| 7-12 | MM-2 | 1247 | 88 | 12.6 | 45.0 | 12.1 |
| 7-20 | BIF | 0020 | 70 | 11.8 | 48.0 | 11.6 |
| 7-20 | MM-2 | 0024 | 97 | 12.0 | 48.0 | 11.6 |
| 7-20 | MM-1 | 0028 | 68 | 12.2 | 48.0 | 11.6 |
| 7-20 | ERD-2 | 0032 | 40 | 11.9 | 48.0 | 11.6 |
| 7-20 | RAW | 0036 | - | 14.4 | 47.0 | 11.8 |
| 7-23 | ERD-2 | 2235 | 42 | 12.3 | 48.5 | 11.6 |
| 7-23 | BIF | 2239 | 72 | 12.5 | 49.0 | 11.5 |
| 7-23 | MM-1 | 2243 | 70 | 12.2 | 48.5 | 11.6 |
| 7-23 | MM-2 | 2247 | 99 | 12.6 | 48.5 | 11.5 |
| 7-23 | RAW | 2253 | - | 13.1 | 47.5 | 11.7 |
| 7-26 | ERD-2 | 1245 | 44 | 12.2 | 47.0 | 11.8 |
| 7-26 | BIF | 1248 | 75 | 11.4 | 50.0 | 11.3 |
| 7-26 | MM-2 | 1251 | 103 | 13.3 | 51.0 | 11.2 |
| 7-26 | MM-1 | 1318 | 73 | 12.4 | 51.0 | 11.2 |
| 8-2 | BIF | 1505 | 79 | 10.6 | 48.0 | 11.6 |
| 8-2 | MM-1 | 1507 | 77 | 15.3 | 48.0 | 11.6 |
| 8-2 | MM-2 | 1507 | 108 | 11.7 | 48.0 | 11.6 |
| 8-2 | ERD-2 | 1511 | 47 | 8.9 | 48.5 | 11.5 |

APPENDIX A-4 (CONTINUED).

| Date | Unit | Time | Run | DO, mg/l | Water temperature, °F | DO saturation value, mg/l |
|---|---|---|---|---|---|---|
| 8-9 | Raw | 2335 | - | 11.1 | 58.0 | 10.3 |
| 8-9 | MM-1 | 2320 | 81 | 10.9 | 57.0 | 10.4 |
| 8-9 | MM-2 | 2323 | 112 | 10.0 | 58.0 | 10.3 |
| 8-9 | BIF | 2326 | 87 | 10.9 | 57.5 | 10.4 |
| 8-9 | ERD-2 | 2330 | 50 | 10.5 | 57.5 | 10.4 |
| 8-14 | MM-1 | 2022 | 84 | 10.5 | 57 | 10.4 |
| 8-14 | MM-2 | 2000 | 115 | 10.2 | 58 | 10.3 |
| 8-14 | BIF | 2005 | 90 | 10.4 | 56 | 10.5 |
| 8-14 | ERD-2 | 2016 | 55 | 10.5 | 56.5 | 10.5 |
| 8-14 | Raw | 2007 | - | 10.6 | 57.0 | 10.4 |
| 9-4 | MM-2 | 2115 | 126 | 12.8 | 40 | 13.0 |
| 9-4 | Raw | 2120 | - | 13.2 | 41 | 12.8 |
| 9-4 | ERD-2 | 2123 | 70 | 13.0 | 41 | 12.8 |
| 9-4 | BIF | 2127 | 109 | 12.9 | 41 | 12.8 |

APPENDIX A-5 BACTERIOLOGICAL DATA, RAW AND FILTERED WATER, DULUTH LAKEWOOD PUMPING STATION - 1974.

| | | | | Raw Water | | | Finished Water | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | Time | Unit | Run | Total Coliform /100 ml | Fecal Coliform /100 ml | Fecal Strep. /100 ml | Total Coliform /100 ml | Fecal Coliform /100 ml | Fecal Strep. /100 ml |
| 6/10 | 1245 | MM-2 | 55 | 132 | 55 | 110 | 3 | 0 | 2 |
| 6/11 | 1330 | MM-2 | 55 | 50 | 16 | 55 | 0 | 0 | 0 |
| 6/12 | 1232 | MM-1 | 35 | 38 | 9 | 16 | 0 | 0 | 0 |
| 6/12 | 1223 | MM-2 | 56 | 38 | 9 | 16 | 2 | 1 | 0 |
| 6/12 | 1228 | ERD-2 | 1 | 38 | 9 | 16 | 0 | 0 | 0 |
| 6/12 | 1225 | BIF | 25 | 38 | 9 | 16 | 0 | 0 | 0 |
| 6/13 | 1225 | MM-1 | 36 | 20 | 7 | 6 | 0 | 0 | 0 |
| 6/13 | 1232 | MM-2 | 57 | 20 | 7 | 6 | 0 | 0 | 0 |
| 6/13 | 1238 | ERD-2 | 1 | 20 | 7 | 6 | 0 | 0 | 0 |
| 6/13 | 1401 | BIF | 28 | 20 | 7 | 6 | 0 | 0 | 0 |
| 6/14 | 1234 | MM-1 | 37 | 4 | 7 | 1 | 2 | 1 | 2 |
| 6/14 | 1238 | MM-2 | 59 | 4 | 7 | 1 | 0 | 0 | 0 |
| 6/14 | 1340 | ERD-2 | 3 | 4 | 7 | 1 | 0 | 0 | 0 |
| 6/14 | 1231 | BIF | 29 | 4 | 7 | 1 | 0 | 0 | 0 |
| 7/10 | 1238 | MM-1 | 59 | 8 | 1 | 1 | 5 | 0 | 1 |
| 7/10 | 1241 | MM-2 | 84 | 8 | 1 | 1 | 0 | 0 | 0 |
| 7/10 | 1243 | ERD-2 | 35 | 8 | 1 | 1 | 0 | 0 | 0 |
| 7/10 | 1235 | BIF | 56 | 8 | 1 | 1 | 0 | 0 | 0 |